DOCUMENT RESUME

ED 243 467 IR 011 091

AUTHOR	Armstrong, J. D., Ed.
TITLE	The Class of 1990: The Impact of Technological and Social Change on Schools. Proceedings of the Annual Conference of the Townsville Regional Group (5th, Townsville, Queensland, Australia, August 26-27, 1983).
INSTITUTION	Australian Coll. of Education, Carlton, Victoria.
REPORT NO	ISBN-0-9594043-2-5
PUB DATE	Aug 83
NOTE	80p.
AVAILABLE FROM	J. D. Armstrong, School of Education, James Cook University of North Queensland, Townsville, Queensland, Australia 4811 ($6.00 per copy postpaid).
PUB TYPE	Collected Works - Conference Proceedings (021) -- Viewpoints (120) -- Reports - Descriptive (141)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Computers; Demography; *Educational Practices; Educational Research; Foreign Countries; *Futures (of Society); Parent School Relationship; School Community Relationship; *School Role; *Social Change; Student Development; Teacher Education; *Technological Advancement
IDENTIFIERS	*Australia

ABSTRACT

The five papers presented at this conference highlight the need for Australian education to take due account of recent social and technological changes and the need for society to exercise control over technology so as to ensure that it is used for the advantage of all people. Keynote speaker John Topley discusses trends in the composition of the student body (especially in higher education) and the workforce, and questions the appropriateness of existing educational structures, school curricula, and the professional preparation of teachers. John Fitzgerald discusses the wide range of differences in community attitudes toward education, and advocates more self-analysis and self-improvement by schools and increased community participation in education. Clive Hildebrand describes the increasing use of technology in developing countries, the concept of "technology banks" or accumulations of technical knowledge, and the role of education in helping Australia to upgrade its use of existing technology. Paul Lucas emphasizes the primary school teacher's need for curriculum design skills, continued professional development, and closer cooperation with parents, while Daryl Hanly highlights the pace of social change in secondary schools and advocates a thorough review of the purposes and aims of secondary schooling. Also included are reports of workshops on the classroom impact of computer technology, needs in teacher education, and education for leisure. (ESR)

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The Class of 1990:

The Impact of Technological and Social Change on Schools

Proceedings of the Fifth Annual Conference
of the Townsville Regional Group held at
St. Raphael's College, James Cook University
of North Queensland, 26-27 August 1983.

Edited by: J. D. Armstrong

IR011091

Published by: The Townsville Regional Group,
Australian College of Education,
November 1983.

Copies of this publication are available from:

Mr. J. D. Armstrong,
School of Education,
James Cook University of North Queensland,
TOWNSVILLE. QLD. 4811

Cost: $6.00 (postage paid)

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ACKNOWLEDGMENTS

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Our thanks to:

Mr. Jim Cox of the Townsville College of TAFE for designing the cover;

Miss Ruth Crowe and staff of St. Raphael's College;

Mrs. Joan Hill for typing these Proceedings.

INTRODUCTION

"The Class of 1990 - The Impact of Technological and Social Change on Schools" was a topical and stimulating theme for the Townsville Regional Group's 5th Annual Conference. Despite the massive technological and social changes that have occurred during the past three decades, schools are still oriented to much the same aims, purposes, content, and methods as Willard Waller wrote about in the early 1930's.

This is not to blame the schools. After all, our society expects its schools to be reactive (not to say reactionary) rather than proactive.

Society itself seems to be unable to come to grips with the amount and rate of technological and social change that has occurred. Certainly the development and adoption of technology to date have outstripped political awareness and social control. The nature of work has changed drastically as a result of technological change, but our society's definitions of work and employment remain firmly rooted in the technology of a by-gone age.

It is not surprising, therefore, that such conservative institutions as schools have been slow in coming to grips with technological change. (By their very nature, schools are much more aware of the impact of social change - even if society has not yet redefined their role in the light of the social change that has occurred.)

Dorf[1] defines technology as "the organisation of knowledge for the achievement of practical purposes". He offers an expanded definition by Parkman[2], who defines technology as "a use of devices and systematic patterns of thought and activity to control physical and biological phenomena in order to serve man's desires with a minimum of effort and a maximum of efficiency".

---

[1] Dorf, R.C. (1974) Technology, Society, and Man. San Francisco, Calif.: Boyd and Fraser.

[2] Parkman, R. (1972) The Cybernetic Society. New York: Pergamon Press.

Schools are traditionally low users of technology. Traditionally, too, they have been slow to adopt technological innovations. Yet, if they are satisfactorily to carry out their role of teaching about the new technologies as well as teaching students to use them, then there must be a massive change in their purposes and in their curricula. Schools face a simple choice: take account of the new technologies or become irrelevant.

Society has an even more difficult task: to ensure that the new technologies are used for the advantage of all people; that, in adopting the new technologies, more important priorities are not lost:

> Technologies are created and used by men ... we have the technological and scientific knowledge to eliminate grinding poverty, prevent the pollution of our environment, and make the world generally a far better place in which to live, yet we do not do so....
>
> Any useful definition of technological man ... must include within it some definition of what his outlook on life will be. For to control technology, to control the direction of human evolution, we must have some idea of where we are going, and how far, else we will be mere passengers rather than the drivers of the chariot of evolution.[3]

With this background, the Conference ranged far and wide. Some of the themes that emerged included the following:

- the changing composition of the total student population (especially those undertaking post-secondary education);
- pressures for increasing community involvement in (and some degree of control over) compulsory education;
- the need for a fundamental review of the aims, purposes, content, and methods of compulsory education;
- the increasing impact of social changes (such as the composition of families, structural youth unemployment, new definitions of morality) on schools;
- the increase in the use of multidisciplinary and interdisciplinary teams in all areas of professional work;

---

[3] Ferkiss, V.C. (1969) Technological Man: The Myth and the Reality. New York: Mentor.

- increasing pressures for schools to take responsibility for self-evaluation and self-renewal, as well as pressures for external accountability;
- the need for teachers to undertake personal and professional development experiences throughout their teaching careers;
- the need to build bridges between the school, the community, employers, and industry and commerce at large;
- the need for teachers and schools to be open to change, flexible, adaptable, and innovative;
- the need to incorporate new skills into school curricula - problem solving, critical thinking, communication and inter-personal skills, self-awareness, and an understanding of the new technologies and social change;
- the need to redefine "work", "employment", and "leisure" in line with present realities.

In the individual papers presented at the Conference, John Topley, of Griffith University, presented a thorough analysis of trends in the composition of the total student body (especially those in higher education) and of the workforce. As a result of this analysis, he posed specific questions about the appropriatenesss of existing educational structures, school curricula, and the professional preparation and skills of teachers.

John Fitzgerald, of the Division of Planning and Services of the Queensland Department of Education, spoke of the wide range of differences in community attitudes to education and the perception of many community groups that some values are not dealt with, or are not realised, in schools. He made a plea for the need to study class-rooms more carefully in order to get a more realistic view of classroom life: this, he felt, would lead to a greater willingness on the part of schools to engage in self-review, self-evaluation, and self-improve-ment. One solution to the problem of relevance in schooling might lie in broadening the base of participation in education: he cited the establishment of school councils in Victoria as one way of effecting fundamental changes in the decision-making process in schools.

Clive Hildebrand, of Umal Consolidated Limited, started from the position that "Economic growth is not only desirable, but essential. It is the engine that generates wealth, provides jobs, and funds the redistribution of some of the wealth via government." He traced the increasing use of technology by the less developed countries and examined the response of the developed countries to this challenge. The developed countries were able to improve productivity by making withdrawals from their "technology banks". In order to maintain its living standards, Australia will have to upgrade its use of existing technology and develop further its technology bank. Education has a role to play in this process.

Two local school Principals, Paul Lucas and Daryl Hanly, presented the viewpoint of the practitioners. Paul Lucas made a plea for teachers to develop to a higher level their curriculum design skills to enable them to cope with the rate of change in technology and society. He spoke of the need for continual professional development on the part of teachers with a view to their becoming more flexible, more open to change, and more sensitive to children's individual needs. He emphasised the need for teachers and parents to work in closer co-operation.

Daryl Hanly highlighted the sheer amount and pace of social change already impinging on secondary schools. In view of the increasing social responsibilities of the school, he made a plea for a thorough review of the purposes and aims of secondary schooling, especially in relation to the new technologies:

> Such a review should include the need for students to be aware of, and to appreciate, technological developments; the need for students to obtain specific knowledge and skills to enable them to apply the various technologies; the need for schools to provide students with experiences in the various technologies as they become available in society; the need for students to be aware of the changing lifestyles and work patterns resulting from technological development; and, of paramount importance, the need for schools to prepare students for a changing society.

The Workshop sessions of the Conference looked at three issues arising from the Conference Theme:

- The Impact of Technology on Classroom Learning;
- Updating the Teacher;
- Education for Leisure.

All three workshop reports highlighted the need for teachers to undertake continuing professional development and for the school curriculum to take cognisance of the new technologies and consequent social changes.

In summary, the Conference highlighted the need for education to take due account of recent social and technological changes and the need for society to exercise some control over technology so as to achieve some balance between social and technological change. Dorf[4] expresses this very well:

> The re-emergence of humane values over purely technological values may be the cornerstone of the last decades of the twentieth century. As we seek new visions in new uses of technology in its proper perspective, we shall seek a more human society. While the new goals, such as the quality of life, are inevitably vague and difficult to measure, they are not less important than quantifiable goals.
>
> *The Scarecrow and the Tin Woodsman are talking on their way to Oz.*
>
> *"I don't know enough," replied the Scarecrow cheerfully. "My head is stuffed with straw, you know, and that is why I am going to Oz to ask him for some brains."*
>
> *"Oh, I see," said the Tin Woodman. "But, after all, brains are not the best things in the world."*
>
> *"Have you any?" inquired the Scarecrow.*
>
> *"No, my head is quite empty," answered the Woodman, "but once I had brains, and a heart also; so, having tried them both, I should much rather have a heart."*
>
> We can dream that in the future our society will have both brains and a heart; both knowledge and compassion; both machines and ecological wholeness; both technology and new humanity. This may be the new dream of man concerning his new technology.

J. D. Armstrong,
Editor.

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[4] Dorf, R.C., *op.cit.*, p.425.

KEYNOTE ADDRESS: THE IMPACT OF TECHNOLOGICAL AND SOCIAL CHANGE ON CLASSROOMS IN THE 1990's

John Topley,
Assistant Vice-Chancellor
and Registrar,
Griffith University.

INTRODUCTION

This Conference is concerned with the impact of technological and social change on classrooms in the 1990's. Speakers presenting lead papers will deal with specific social and technological impacts. There are also to be workshops which deal with some of the educational influences and tasks our profession faces now and will certainly still be dealing with in the 1990's. This paper deals with some of the general characteristics of the Class of 1990 as a part of the Australian population; identifies some of the social and technological factors which might well be salient for the Class of 1990; and considers some of the features of the classroom, and the schooling and educational processes, which might be important for the Class of 1990, and will almost certainly require some thought and action by us.

There are two sources of statistical information which have been particularly valuable in considering the topic of this Conference, and I have drawn heavily upon them in setting the context for the paper. I particularly acknowledge my debt to Learning and Earning: a Study of Education and Employment Opportunities for Young People published in 1982 by the Commonwealth Tertiary Education Commission (1); and Review of Australia's Demographic Trends 1982 published in 1982 by the Department of Immigration and Ethnic Affairs (2).

THE CLASS OF 1990

From the Conference outline, it seems that the Class of 1990 is all those in schooling or in some form of formal education in that year. This includes the vast majority of Australians aged from six to 20 years. It also includes a substantial number of people of more advanced years. Even in 1981 (5, p.9), there were 1.2 million people aged 15 to 25 years attending educational institutions in Australia, and 0.45 million aged 26 to 64 years. This is against the background (3, p.79) of there being 3.7 million participants in some form of formal education in Australia.

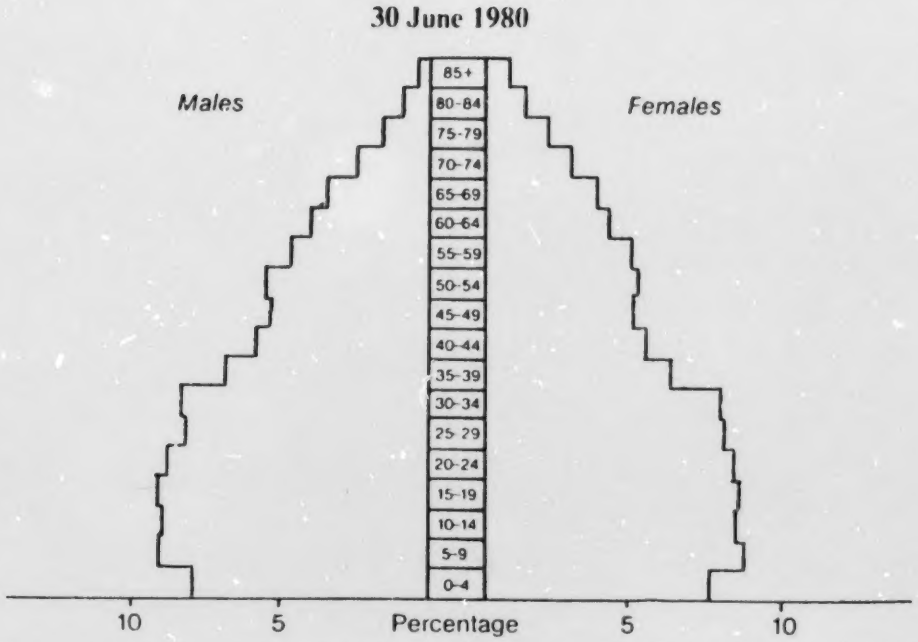
Thus, unless there is a major reversal of a long-term trend towards higher levels of participation in education, the Class of 1990 is likely to include about one-quarter of Australia's total population.

All those who in 1990 will be at Year 9 or beyond are now in school, or have been to school at some time; and those who will be in Years 4 to 8 are already having those indelible early childhood experiences which will shape their reactions and contributions to their schooling. So a good deal is already known, demographically, about the Class of 1990.

Where does the Class of 1990 fit into the Australian population? Here, as in the rest of the paper, my attempts to make guesses which involve the future will consist of examining trends over the current decade or so, and speculating about the future of such trends and the effects of environmental circumstances which are visible to us. We will have to leave to the tacticians of 1990 the task of dealing with the factors we overlook now, and the frustration of wondering why the wise men and women of 1983 did not recognise them.

The Class of 1990 forms part of a population which, assuming net migration gain at 0.6% of total population, is projected to grow from about 15 million in 1983, to 17.3 million in 1991, 19.9 million in the year 2001, and possibly reach 25.9 million in 2021, at which time most of the Class of 1990 will still be aged only from 35 to 45 years (2, p.20).

These increases in population will not be brought about by increases in birth rate, but by the maintenance of the net rate of reproduction (which has just now moved marginally beyond the break-even point) and by the ageing of the large bulge in the Australian population consisting of the members of the "baby boom" which occurred after the 1939-45 War, and their children (2, p.7) (see Figure 1).

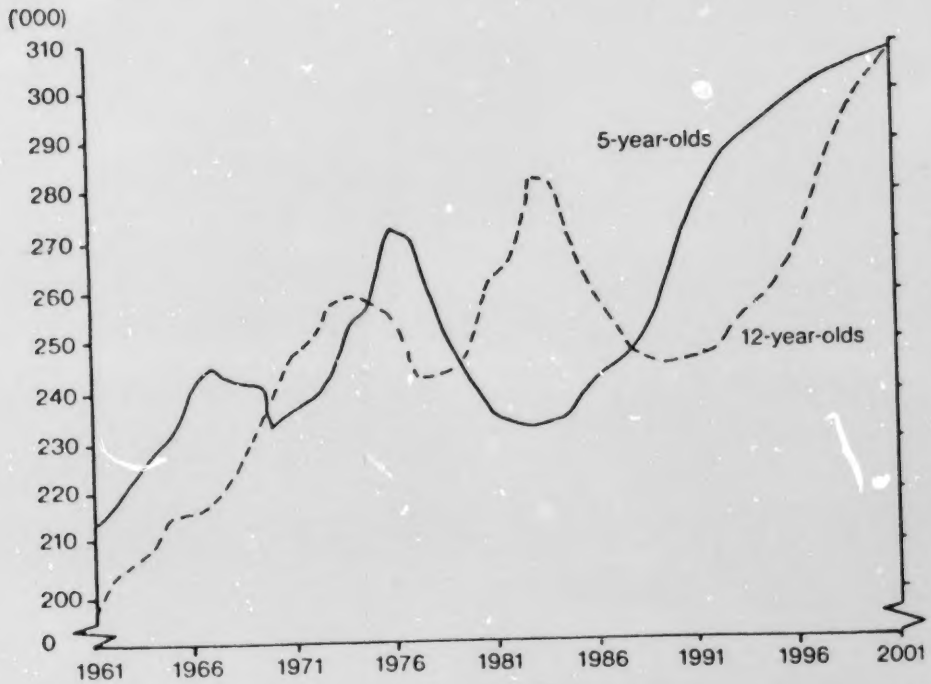


Sources Australian Bureau of Statistics, *Estimated Age Distribution of the Population: States and Territories of Australia*

Fig. 1. Estimated Age Distribution of the Population: States and Territories of Australia, 1980.

The population of people aged over 65 years has risen over the last decade or so; it is likely to rise from 9.7% of the population in 1981 to 12% by 2001, and to go on rising well into the next century (2, p.21). Over the same period, the median age of the population will probably rise from about 30 years to about 34 years. Thus, the Class of 1990 will be part of an older population, more evenly distributed across the middle years, and with increasing proportions of aged people.

The year 1990 itself will see the beginning of a new increase in numbers of commencing primary students, which is likely to go on to the end of the century. There will be, in 1991, a trough of 12-year-olds in our population, but this will naturally enough increase as the 1990 five-year-old upsurge is felt further and further into the school years (1, p.23) (see Figure 2).



Sources: Australian Bureau of Statistics, *Estimated Age Distribution of the Population: States and Territories of Australia* and unpublished projections provided by the Australian Bureau of Statistics (1981).

Fig. 2. Actual and Projected Population Estimates, Persons Aged 5 Years and 12 Years.

There will also be pressures on education at other age levels. People are staying in education longer, there is a much increased proportion of women in higher education, and more people of both sexes are returning to education during their middle and older years (3, p.88). However, in absolute terms, fewer males are entering higher education (1, Vol. 2, p.41) (see Table 1). It is interesting to note that, in streams one to five of technical and further education, about 54% of students are aged over 21 years (1, Vol. 2, p.21).

Table 1. Initial Entrants to Higher Education by Sex and Age Group - 1977, 1979, and 1981.

AGE GROUP (Years)	MALES 1977	MALES 1979	MALES 1981	FEMALES 1977	FEMALES 1979	FEMALES 1981	PERSONS 1977	PERSONS 1979	PERSONS 1981
18 and under	20 325	19 493	18 670	19 574	20 084	18 978	39 899	39 577	37 648
19 to 21	5 676	5 796	5 426	3 446	3 944	4 426	9 122	9 740	9 852
22 and over	7 354	7 834	8 436	5 952	7 043	7 913	13 306	14 877	16 349
TOTAL (a)	33 465	33 213	32 657	29 032	31 119	31 404	62 497	64 332	64 061

Some of these trends are likely to be reinforced by the present educational and general social policies of the Australian Government, which is taking steps to encourage more young men and women from all groups of the community, including disadvantaged groups, to continue at school longer, and to move into higher levels of education, as well as offering support to the achievement of equal opportunities for men and women. So some of the reported trends may well vary, and new trends may become evident.

In summary, some of the trends likely to be reflected in the nature of the Class of 1990 are:

(i) Proportionately more girls than women are engaged in higher levels of education than previously.

(ii) The Class of 1990 as a whole makes up about one-quarter of the Australian population. This proportion may grow under the influence of factors discussed later.

(iii) The under-21-year group forms a declining proportion of the Australian population.

(iv) Proportionately fewer younger people and more older people are involved in education.

(v) The changing age structure of people engaged in formal education makes them increasingly representative of the whole Australian population.

(vi) It is probable that more less able students will remain longer in education.

SOME SALIENT FEATURES OF THE AUSTRALIAN ENVIRONMENT FOR THE CLASS OF 1990

In selecting nine or ten features of the Australian social, economic, and technological environment which I feel will affect the perceptions, aspirations, and expectations of the Class of 1990, I am neglecting many major factors likely to influence our society; these include increasing socio-political plurality, changing family situations and family stability, changing ethnic mix, increasing urbanisation, changes in global economic relationships and the balance of political power, changing consumption and sources of energy, and the varying capacity of our community to cope with change and its associated stress. The features I shall refer to briefly are, I believe, particularly significant for the members of the Class of 1990 in terms of the way in which their education is arranged.

The Nature of Work to be Done in our Society

The present trends in the type of work engaging the Australian workforce are strongly towards more professional and skilled white collar work, and away from full-time skilled, semi-skilled, and unskilled blue collar and rural work (1, Vol. 2, pp.55-57). The increase, in absolute terms, of women in the workforce is greater than for men in professional white collar areas, and substantially greater in the skilled and semi-skilled white collar areas. There is a decrease in the number of women in the blue collar, full-time areas (see Table 2).

The part-time workforce has very nearly doubled in the period 1971-1981, compared with an increase of merely 5% in full-time workers (1, Vol. 2, pp.59-61) (see Table 3).

Table 2. Wage and Salary Earners in Full-time Employment by Skill Group.

SKILL GROUP	MALES		FEMALES		PERSONS	
	1971	1981	1971	1981	1971	1981
Professional White Collar	162.1	309.0	77.2	151.9	239.3	460.9
Skilled White Collar	365.8	375.1	119.1	155.5	487.7	530.6
Semi-skilled and Unskilled White Collar	497.3	506.3	615.8	686.3	1 113.1	1 192.6
Skilled Blue Collar	873.4	831.4	72.7	45.2	946.1	876.5
Semi-skilled and Unskilled Blue Collar	1 004.7	1 019.9	338.8	297.2	1 343.5	1 317.1
Rural Workers	152.4	130.5	12.1	12.8	164.5	143.3
TOTAL	3 058.5	3 172.1	1 235.8	1 348.8	4 294.2	4 520.9
- *Total White Collar*	*1 027.9*	*1 190.4*	*812.2*	*993.7*	*1 840.1*	*2 184.0*
- *Total Blue Collar*	*1 878.1*	*1 851.3*	*411.5*	*342.4*	*2 289.6*	*2 193.6*

Table 3. Wage and Salary Earners in Full-time Employment by Skill Group.

SKILL GROUP	MALES		FEMALES		PERSONS	
	1971	1981	1971	1981	1971	1981
Professional White Collar	13.7	15.8	34.8	77.8	48.5	93.6
Skilled White Collar	9.2	12.6	22.5	48.8	31.7	61.3
Semi-skilled and Unskilled White Collar	17.8	34.1	161.0	278.9	178.8	313.0
Skilled Blue Collar	*	13.9	5.2	9.7	10.1	23.6
Semi-skilled and Unskilled Blue Collar	30.0	72.2	152.7	237.1	182.7	309.2
Rural Workers	8.4	11.7	5.8	11.1	14.3	22.8
TOTAL	84.0	160.2	382.1	663.4	466.2	823.6
- *Total White Collar*	*40.7*	*62.5*	*218.4*	*405.5*	*259.1*	*467.9*
- *Total Blue Collar*	*34.9*	*86.0*	*157.2*	*246.8*	*192.8*	*332.8*

The absolute comparison is an increase of 359 000 part-time workers, compared with an increase of 227 000 full-time workers. Women make up the bulk of the increase in part-time workers. Increasing opportunities for job sharing, and fractional appointments, better early child care provisions, more equitable access to benefits of employment, and the flow-on effects of the higher proportion of better-educated women in our society, are all likely to promote increases in the proportion of women in the permanent work force. There might be expected to be continuing substantial changes in the educational needs and work destinations of women. Changes in the numbers in the various broad classes of jobs seem to reflect the community's wish for improved social and technical services, the increasingly knowledge-based nature of Australian industry, and the increased reliance on mechanised processing at the material production level.

One effect of technology is to force rapid evolution of some types of work. For example, in the operational level of clerical work, the advent of electronic data handling has given a brief period of glory to those who move data through computers and word-processors. Differentiation of their work from the more traditional keyboard and paper-based clerical operation is on the verge of being submerged in a continuum of electronic-based office technology. The likelihood is that the well-known callings of typist, stenographer, and clerk will give way to a general clerical operative position, requiring a range of keyboard, technological, clerical, and communication skills. If the expected demise of the keyboard occurs, a significant amount of data handling may well be done directly by people who now depend on intervening keyboard operators. Maybe schools will not, after all, be called to task for their shameful neglect to make all school-leavers proficient in keyboard skills.

Who Are Employed?

The increase in the full-time workforce, which has just been noted, has been concentrated not only among women, but among women aged 25 and over and in the white collar area. This is even more marked in the part-time workforce, and is accompanied by some increase in part-time female participation in the blue collar and rural groups (1, Vol. 2, pp.55-61).

Younger men and women have faced increasing difficulty in obtaining full-time work (1, Vol. 1, p.22). The proportion of men and women in the 15- to 19-year group and the 20- to 24-year group who are unemployed and looking for full-time work is in the range of 5 to 8%, compared with 1 to 2% in the 1960's and early 1970's. Furthermore, as would be expected, the age distribution of labour will follow the general demographic trends (2, p.24), thereby accentuating the trend towards an ageing workforce. Thus the needs and expectations of those being educated in their late teens will differ from the needs and expectations of those entering the workforce in their middle years, or temporarily re-entering the education process at that time. The rates of unemployment experienced by members of the workforce in relation to their educational attainment levels reinforce the attraction of qualified people to the white collar skilled and professional work groups. Table 4 shows unemployed persons as a proportion of all persons of the same age in the labour force (1, Vol. 2, p.76). Two facts are obvious: a larger percentage of females are unemployed than males, and the possession of post-school qualifications increases the chances of obtaining employment.

Table 4. Civilian Labour Force Aged 25-34: Unemployment Rates by Educational Attainment - Australia, February, 1981

	Unemployment Rates	
	Males	Females
	(percentages)	
WITH POST-SCHOOL QUALIFICATIONS		
- Degree or Equivalent	1.8	7.0
- Other	2.5	4.6
- TOTAL	2.3	5.4
WITHOUT POST-SCHOOL QUALIFICATIONS		
- Attended highest level of secondary school available	4.2	8.8
- Did not attend highest level of secondary school available	5.6	8.4
- TOTAL	5.2	8.5
- OVERALL TOTAL	3.7	7.1

The Level of Education of the Australian Community

The increase in numbers remaining longer in secondary education, and the increased participation in tertiary education generally, suggest that the educational level of the Australian community is increasing. One indication of the educational level of the community is the proportion of graduates in the population. While the proportion of the 15- to 64-year-olds who are graduates is 5.3%, 7.7% of 25- to 34-year-olds and 6.3% of 35- to 44-year-olds are graduates. Table 5 (1, Vol. 2, p.48) shows how the proportion increases as the age groups become lower and also demonstrates the increasing relative proportion of female graduates.

Table 5. Graduates, by Age, Australia 1978-79

	AGE GROUP					
	15-24	25-34	35-44	45-54	55-64	15-64
			('000)			
Males	35.4	113.1	77.8	55.9	31.8	314.0
Females	31.4	61.8	29.6	17.2	5.4	145.5
Persons	66.8	174.9	107.4	73.1	37.2	459.4
	(per cent of civilian population)					
Males	3.7	10.0	9.0	7.4	5.1	7.3
Females	3.3	5.4	3.6	2.4	0.8	3.4
Persons	3.5	7.7	6.3	5.0	2.9	5.3

Changes to the educational levels of full-time workers aged 15-64 illustrate the effects of this change in the educational levels of Australian society. They point to the educationally competitive type of workforce into which the Class of 1990 will be seeking entry. The proportion of full-time workers aged 15 to 64 with post-school qualifications increased from 24.7% in 1968-69 to 48.2% in 1978-79. The proportions of workers without post-school qualifications declined from 75.3% in 1968-69 to 51.8% in 1978-79 (1, Vol. 2, p.71). The rate of change for women was far greater than for men.

The Growth of Knowledge, and the Changing Use of Knowledge

No one involved in education can be unaware of the quite startling increases during the last two or three decades in the amount of recorded knowledge. We have all noticed the burgeoning of academic and technical journals during the 1960's and the 1970's. Most of us have been caught up in the enormous increase of writing and reporting in the social sciences over the last 20 or 30 years. It has also become evident that, as our society has faced up to solving the more complex social and technological problems, the means of drawing on its rapidly expanding stock of knowledge has changed. It is now increasingly common for those complex problems to be addressed by multidisciplinary, and now inter-disciplinary, professional or semi-professional teams. Examples can be found in the wide range of disciplines represented in the staff of the Queensland Co-ordinator-General's Department; the range of people now employed in architectural and environmental planning offices; and the increasing need for paramedical workers to work in multidisciplinary teams and, significantly, to overlap quite substantially into one another's functions. We also note the decline of the single authoritarian manager or executive and the increased use of managerial teams, particularly in the essentially knowledge-based enterprise. Members of the Class of 1990 face entry to a world in which the sole expert or isolated worker will be increasingly a rarity.

The Effects of Communications Technology, Travel, and Urbanisation

Access to an increasing variety of communications technology and travel opportunities, and the increasing urbanisation of the Australian population suggest that the Class of 1990 is likely to have been exposed to a much greater range of experiences, both direct and vicarious, than classes of previous years. It may be that the balance of experience has changed; for example, as access to television affects the daily routine of the young, there may be a decrease in natural direct motor experience and natural direct practical developmental experiences, and an increase in exposure to cognitive and affective activity. Furthermore, as the student body becomes older, we as educators must learn to deal with students who not only bring more experience to the classroom but also have an increased capacity and willingness to appraise and evaluate what educators provide there.

Language

There has undoubtedly been much more emphasis given in schools over the last decade or so to working with oral language. One of the major influences upon us of advances in technology, and certainly upon the Class of 1990, is the increasing extent to which visual media other than in print form, and the oral medium, are relied on for information, entertainment, and the stimulation of the imagination. The Class of 1990 will be required to operate in a world where an increasing proportion of the communication they themselves generate will need to be in the oral and non-print media. However, in the professional and skilled white-collar areas, into which there is an increasing movement of the workforce, there are still cultural forces that place very high value on competency and style in written communication. There is little, if any, evidence that these cultural pressures are diminishing in the face of heavier reliance on oral and non-print communication. But there is very strong colloquial evidence that communication skills of all sorts, whether or not based on language capacities, are increasingly important in most work situations.

Sex and Age Roles

Other speakers in this conference will undoubtedly deal in much more detail with the massive changes in sex and age roles that are occurring in our society. Some of them have been explored in this paper, with particular reference to participation in education, and sex and age distribution in the workforce. However, if the way these changes are represented in the education profession is to be a reflection of the changes that occur in society generally, and if we accept that attitudes are learnt more as a result of the influence of significant others and of organisational climate than by instruction, there is a very great challenge to members of the teaching profession - it is to prepare themselves to equip the Class of 1990 with the attitudes necessary for healthier and more equitable participation in a society where sex and age roles are likely to be very different from those which we know today.

The Community's Expectations of Education

During the last decade, there has been a range of reports generated at State and Federal level on the community's expectations of and attitudes

to the educational process. A characteristic of these reports has been the finding that there are two major classes of expectation. One is concerned with that aspect of education which teachers know as "education for life". The other is concerned with what we have come to identify more clearly recently as "education for the world of work". I believe that these two sets of expectations present educators with a false dichotomy, based on assumptions which need thorough examination. If education for work cannot be subsumed into the concept of education for life, then "life" must have a very strange meaning indeed. However, the regularity with which the dichotomy is identified in reports based on examination of the community's perceptions and expectations is disturbing. I believe that it suggests that our society is not adequately equipped to debate education. It does not have the concepts or language to talk about the goals and objectives of education, or to consider what elements of society (employers, schools, higher education institutions, continuing education services, or individuals themselves) ought to be responsible for arranging particular aspects of education or training.

It will be important both for the Class of 1990 and for the professional educators responsible for generating their education to provide society with the means to examine objectively and carefully the issues which have just been outlined. It is the profession of education which has the responsibility to provide concepts and language for that examination and to be active in the debate. It is a responsibility which shows little evidence of being exercised.

Industrial Practice

During the last few years, there has been public notice of the increasingly obvious disjunction between industrial provisions and the needs of the community. The question of the restrictive influences of penalty rates on the tourist industry is one which has been fairly widely debated. I believe it might also be fairly asserted that many industrial awards promote conservatism in the work situation and focus on the well-being of those in traditional forms of employment, that is, those who are in full-time long-term employment in one job or career pattern, and whose life pattern will develop in a male rather than a female way. Industrial structures have been slow to respond to the upsurge in casual, part-time, and fractional work patterns, which have been examined earlier in this paper.

Closer to home, industrial arrangements affect the behaviour of the educational workforce. One has only to think of the structural inhibitions written into awards - to do with working hours, holiday periods, the assumptions inherent in salary scales, reliance on pre-professional and formal qualifications to determine salary levels, and the statutory provisions which prevent use being made in the school classrooms of people who do not meet teacher registration requirements.

IMPLICATIONS FOR THE CLASS OF 1990 AND THOSE CONCERNED WITH THE EDUCATION OF THE CLASS OF 1990

Our examination of the changing context of education, and the view we have of the circumstances which will face the Class of 1990, and our general appreciation of social and technological factors suggest a number of questions which go to the very nature of our organisational arrangements for the provision of education, the way in which teachers are prepared and conduct themselves, and the interaction between students and educational systems. I intend to conclude this paper by listing questions as they occur to me; these questions emerge from the earlier matters dealt with in the paper and they might well be the concern of a group of people interested in the education of the Class of 1990.

Matters of Structure

Many of the structures of the educational process - which reveal themselves in physical facilities, in the way students are grouped and organised, in the way teachers relate to one another, and in the specific terms and general language we use - are rarely subject to objective examination by educators. Given the changing nature of the workplace, the influence of technology, the changing rate of change in the workplace, and the changes we expect to occur in the distribution of age and sex in the student body, it surely behoves us to examine some of the following questions:

(a) To what extent is the division of the educational process into primary, secondary, tertiary, and continuing stages sensible?

(b) Even if we do identify these stages separately, are there reasons for maintaining the present exclusiveness of activity of these sectors?

(c) Do concepts of grades, years, and classes serve a useful purpose in the organisation of education? What is the effect of labelling students with these terms?

(d) Why is the calendar year used as an educational cycle? Why are so many of our educational prescriptions made in terms of time (for example, three years for a bachelor's degree, twelve years of schooling, one year equals one grade)? What possibility is there of introducing more free-running programs, and what would be the advantages of this?

Matters of Curriculum

Beginning with the widespread questioning of purposes and relevance of University education in the Western democracies during the late 1960's and early 1970's, there has been increasing interest in curriculum at all levels of education. Education systems have provided more formal machinery (and informal opportunities) for discussion and review of curriculum. Under the aegis of entities such as the Queensland Board of Secondary School Studies, the level of curriculum development activity far surpasses that which prevailed in the decades previous to the establishment of that Board. There have been a number of successful experiments in departing from traditional obsession with subject content at higher educational levels. At the risk of being accused of immodesty, I would give the success of interdisciplinary, theme-based degree programs at Griffith University as an example. The social and technological context of the educational process for the Class of 1990, and the characteristics of the Class itself, pose curriculum questions:

(e) How clear are our educational objectives? How clear should our objectives be to ourselves as educators, to our students, and to the society in which we work?

(f) How well balanced are these objectives in terms of dealing with the cognitive, the motor, and the affective learning requirements of people who will, by and large, be living until the second half of the 21st century?

(g) To what extent should emphasis be placed on the process elements of education as distinct from the content elements with which the classroom has been dominantly concerned?

(h) To what extent are we professionally equipped to engineer appropriate processes, in appropriate environments, and focused on appropriate content, and to deal with physical skills, thought and knowledge, and feelings and the behavioural expressions of feelings?

(i) What is the likely relevance of subject- or discipline-based formal education to the needs of the increasing portion of students who will be re-entering education seeking the enhancement of skills or understandings extending well beyond the boundaries of the traditional school subjects? (Indeed, we might well ask for how much longer discipline-based subjects should constitute the vast majority of secondary school experience.)

The Matter of Teachers (and Other Professional Educators)

The 1982 Annual Report of the Queensland Board of Teacher Education shows that about a quarter of primary school teachers working in Queensland schools have received only one or two years of teacher training (pp.34 and 39). Although opportunities for the in-service education of teachers have increased substantially, heavy reliance is still placed on pre-professional teacher education. Although more mature-age students are entering teacher preparation programs, it it still largely the case that people enter pre-service teacher education courses relatively directly from secondary school, and that teachers have not had substantial experience of other work. The demography of the teaching profession in Queensland also demonstrates the substantial difference from the overall demography of the Australian population, particularly in that middle-aged and older women are under-represented. There are some questions that should be asked about teachers:

(j) How well can teachers, who by 1990 may well be decreasingly representative of workforce characteristics of the Australian population, be expected to cope with a full curriculum treatment for the type of student body we have postulated?

(k) How prepared are teachers to surrender their traditional individual command of "their classroom" to participate in the team working style which is more and more characteristic of the world of work, particularly in knowledge-based industry?

(l) How well equipped with the management skills required to administer a process-oriented workforce are the administrators of educational institutions?

(m) Are teachers in a position to keep pace with and deal with the diverse educational requirements of an ageing student group, and adjust to the different types of personal interaction with students necessary for an older group of people?

(n) What is the role of educators in supporting debate about an understanding of education, and how well equipped are teachers to articulate their profession to their students and to society?

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LEAD PAPER : CHANGING SOCIAL EXPECTATIONS AND CLASSROOM PRACTICE

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When the classroom door opened, the teacher turned and beheld an eager group of children entering. His heart went out to them and he said:

"What would you learn from me?"

They replied:

"Show us how to keep our bodies in perfect health: teach us how to love beautiful things. Help us to discover what powers are in us, and what things we do best.

"Show us how to work happily with each other, so that we may eventually work in happiness with all our fellow-men.

"Teach us how to draw and build the lovely things which are in our minds. Let us be busy at work-bench and table and blackboard; and at other times, when the mood takes us, allow us to read quietly amid the treasures of the library.

"Show us how to speak and write our language with beauty.

"Help us to discuss some of the problems about which the modern world is so puzzled: perhaps some day we shall be the people who have to find a solution to these problems.

"Be one of us and play with us on the playing-fields.

"Tell us what life means and how wonderful the world is.

"Do this and we will love you."

At this the teacher turned away sorrowing, for his teaching dealt not with these matters.

This quotation has been attributed to Chapman and Counts and was written in 1924. I have drawn on it to focus our discussion on a number of issues, and in this regard I would raise several questions:

(i) Are the replies of the students current today?

(ii) Will they be applicable in 1990?

(iii) What sort of children will respond to the teacher's question in this way?

(iv) Do the replies reflect the requirements of society - in the 1920's? in the 1970's? in 1990? Do they ring true for today? Is this what the educational enterprise is currently concerned with? Do they mirror social norms - norms which are of importance to the community and to education?

(v) Could it be that society and students value such purposes as are contained in the replies but that the business of teaching is not concerned with them?

(vi) What do we make of the juxtaposition of the statements of the teacher "What would you learn from me?" and "...the teacher turned away sorrowing, for his teaching dealt not with these matters." In particular, what inferences do we draw from the use of the words *learning* in the sentence "What would you learn from me?" and *teaching* in the phrase "...for his teaching dealt not with these matters."

(vii) Are there embedded in the children's replies useful descriptions of education? Or do we view them as broad statements of goals and philosophy that we should consider with distasteful weariness on the grounds that they are not a vital focus for discussion of the real business of education?

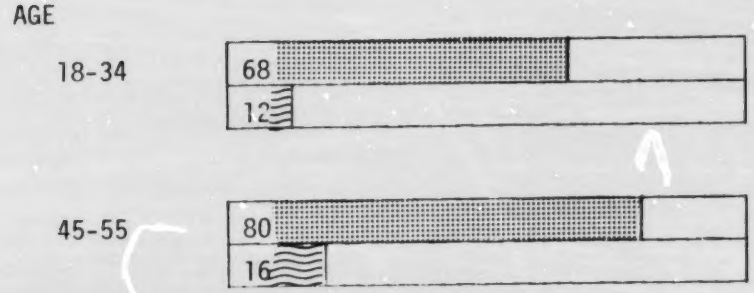
These, then, are some of the questions that the quotation raises for me. While I shall not address them systematically, you will find that both the questions and the replies of the children underlie the discussion that follows.

The particular slant I have elected to take is to attempt to probe, through a limited number of examples, certain current and future expectations of Australian society. I have also endeavoured to relate these expectations to the perceptions of the community on school practice.

Education is not ahistorical, and, in order to get some purchase on the requirements and possibilities in 1990, we need to look at current and past circumstances. In 1977, the Australian College of Education undertook a study into community attitudes to education in Queensland. Approximately 1 000 responses drawn from 35 Queensland electoral areas served as the data base for reporting the attitudes of the community to a range of educationally related matters.

I have drawn on this survey to provide some issues on which to focus our discussion. In the Chapman and Counts passage, the children in their reply to the teacher said, "Show us how to work happily with each other, so that we might eventually live in happiness with all our fellow men." In endeavouring to determine whether this was a behaviour valued by the community, and one which it asked the school to inculcate in its students, the Australian College of Education survey asked its respondents to rate the importance schools should give to: "Teaching students how to get along with others."

Table 1. Percentages Attributing Great Importance To / Great Success In Teaching Students How to Get Along With Others - By Age

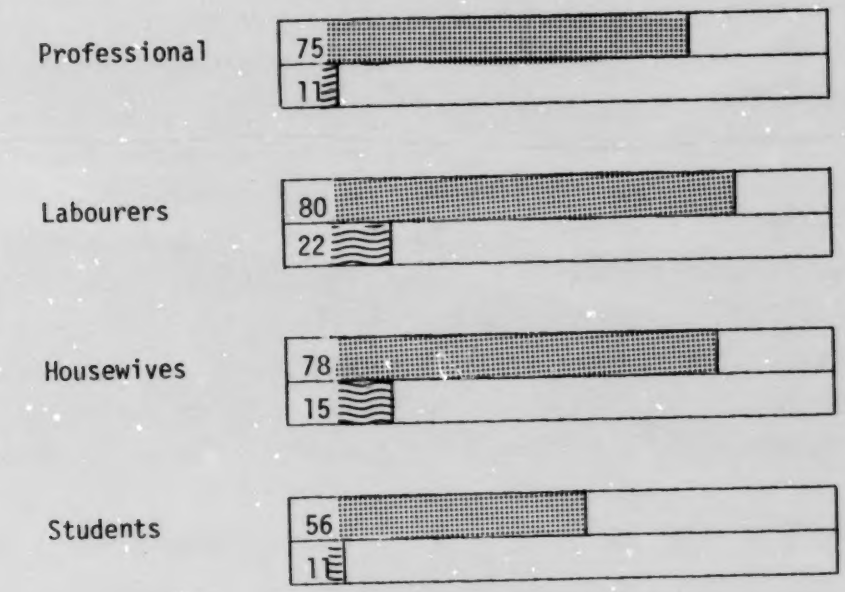


I have split the responses of members of the community, in the first instance, into broad age-bands. The first group comprises those respondents aged between 18 and 34, and the second comprises those who are over 45 years of age. Respondents were asked to give a rating of importance to this issue as either great, moderate, or little or none. Table 1 indicates that 68 percent of the respondents aged 18-34 attributed a great deal of importance to teaching students how to get along with others, whereas 80 percent of the respondents over 45 years of age assigned great importance to this matter. The first and most obvious point is that there is a substantial difference of opinion on the priority assigned to this behaviour among the two age-groups and, as a consequence, we may infer that there are different norms in this regard for groups of differing age. This immediately points to the difficulties involved in providing experiences which will meet the expectations of all the community. We educators are also members of the community, and this raises the second matter of interest - our age would appear to have some bearing on what we value. The figures suggest that younger Principals may be less likely to value, and consequently to provide, experiences which teach students how to get along with others.

The response of the teacher in the hypothetical example, to the reply of the children, "Show us how to work happily with each other, so that we may eventually work in happiness with all our fellow men" may thus vary across the community and possibly across schools.

Further insight into variations in the perception of the importance to be ascribed to teaching students how to get along with others may be gained through an analysis of the responses provided by various occupational groups. In the A.C.E. study, ten occupational categories were the subject of investigation. I have selected four of these to illustrate points of agreement and/or variations in opinion (see Table 2). The four occupations selected are: Professional, Labourers, Housewives, and Students. The number of respondents for each of these categories of occupation is as follows: Professional - 82; Labourers - 55; Housewives - 297; and Students - 27.

Table 2. Percentages Attributing Great Importance To / Great Success In Teaching Students How to Get Along with Others - By Occupation



Note that there is considerable agreement (75-80 percent) among the first three occupational categories (Professional, Labourers, and Housewives) on the ascription of great importance to teaching students how to get along with others. Students were somewhat less concerned (56 percent) with this matter.

However, one thing that is common to all the occupational categories is the extreme difference between the ascription of great importance to this matter and the schools' limited achievement of great success in dealing with it. As the graphs indicate, the differences are very marked: for example, for the "Professional" occupation category, the relative percentages are 75 percent and 11 percent.

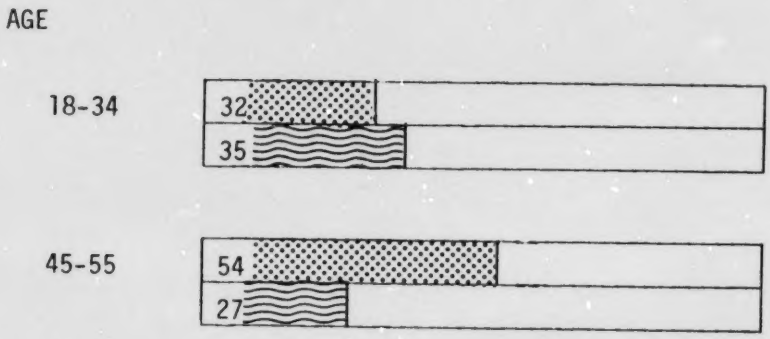
I would infer from this data that the ability to get along with others is regarded by the community as of great importance. I would see nothing that would change this viewpoint in either 1990 or in any decade of the future. The community's perception of the success of the

development of this ability by schools is that it is very limited. The issue for 1990 then becomes less a task of the identification of social norms of relevance to education and more one of looking towards present practice with a view to addressing the discrepancies presently in evidence in Tables 1 and 2.

The issue becomes all the more important if one takes Jean Blackburn's (1980) orientation on this issue. She rejects the view that it is another task placed on the school; rather, she says, "Learning to co-operate with others in learning and being committed to how well the whole group learns is a means of learning, not an additional task." It is, in other words, intrinsic to the learning process.

Competition among students and the value placed on free enterprise in our society also provide an interesting focus of analysis. As with "getting along with others", "competition" provides a behavioural/attitudinal orientation rather than a substantive one. Again, you may care to project relative emphases among different age and occupational groups in the community (see Table 3).

Table 3. Percentages Attributing [Great Importance To] / [Great Success In] Encouraging Students to Compete with Others - By Age

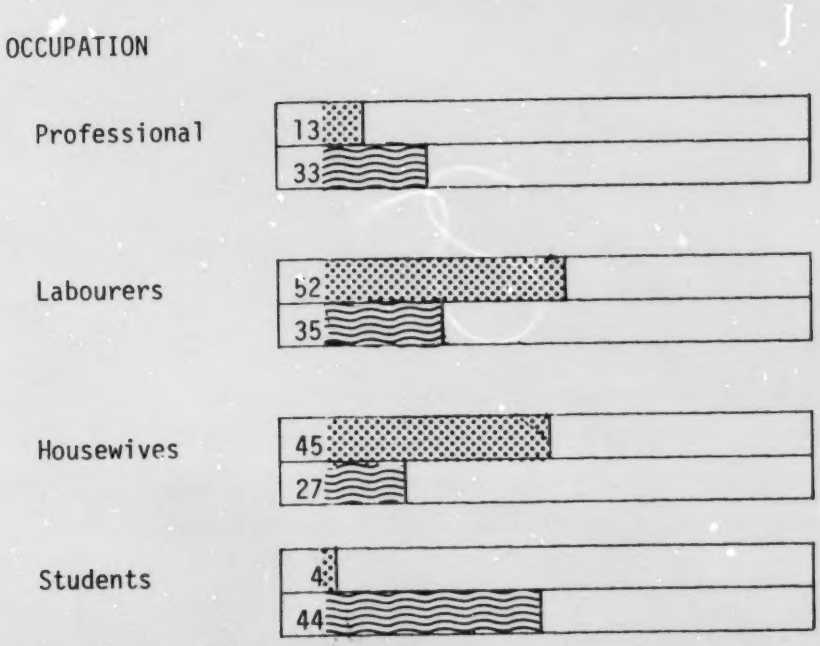


We are living in a period where competition in education is, relatively speaking, being de-emphasised. The emphasis is reduced as far as competition with others is concerned and now seems to be directed towards competition with self. The abolition of the Scholarship

examination two decades ago is one indication of this, as is the current endeavours of ROSBA to shift the balance from a norm-based system of assessment to a criterion-based one. In the latter case, in theory at least, "others" matter less than does self-assessment. Of interest in this table is that the older age-group in the community ascribes greater importance to competition than does the younger group. Further, the older age-group also believes that school is less successful in this endeavour than the younger age-group believes it is. Again, it is possible that we as a group of educators reflect similar variations of opinion on the basis of our ages - opinions which may, I suspect, be as divergent in 1990 as they are now.

Occupationally there are considerable differences of viewpoints in the community on the issue of competition. The percentages attributing great importance to encouraging students to compete with others are: Professional - 13 percent; Labourers - 52 percent; Housewives - 45 percent; and Students - 4 percent (see Table 4). While only 4 percent of students attribute great importance to the encouragement of competition, 44 percent of students were of the view that schools achieve great success in this regard.

Table 4. Percentages Attributing [Great Importance To] / [Great Success In] Encouraging Students to Compete with Others - By Occupation



Note that it is the view of the over-45's, the Labourers, and the Housewives that schools should be doing more with respect to encouraging competition than they presently are. On the other hand, it is the 18-34-year-olds and the Professional and Students occupational groups who seem to be suggesting that schools are over-emphasising competition.

Competition has, of course, taken on a different value in recent years, given the worsening economic and employment conditions. Consequently, if the circumstances in 1990 are significantly different (and current projections indicate that they will be), the prevailing view then on an issue may well be different from what it is today.

It is argued that one characteristic of our society is its predisposition to advance itself. In the 1960's the pathways in this regard as far as the schools were concerned were seen to be through the disciplines of knowledge; hence the endeavours of curriculum developers focused on capturing the structures and modes of enquiry of the academic disciplines. In the 1960's, curriculum theorists were supporting a trend away from progressivism, arguing that it inadequately served the needs of society at that time. The reasoning of the time linked the unprecedented and quite unimagined social and technological changes to a need for a vast outpouring of intellectuals from schools. Hence the focus on structured knowledge. The 1970's saw that a single-minded focus on the intellect was not the panacea it was initially believed to be. The view now is that society requires members who can feel and act as well as think.

Drucker has written:

> *There is a horrible example in history of what the Educated Society might easily become, unless the [society] commits itself to the education of the whole man. It is the destruction of one of the world's greatest and most creative civilisations, the China of the T'ang and Sung periods, by the imposition of a purely verbal, purely intellectual, purely analytical education of man in society, the Confucian Canon. Within a century this commitment to the purely intellectual in man destroyed what had been the world's leader in art as well as in science, in technology as well as in philosophy. We are today in a similar danger....*
>
> (Silberman, 1971)

I have no reason to believe that the danger will be any less in 1990.

The A.C.E. survey probed the view of the community on the importance it ascribed to the development in students of a desire to learn more (see Tables 5 and 6). This issue embodies both intellectual achievement and satisfaction and the inculcation of an affinity for learning. It addresses the views of the community on the relationship between cognitive and affective facets of learning.

Table 5. Percentages Attributing [Great Importance To] / [Great Success In] Developing a Desire to Learn More - By Age

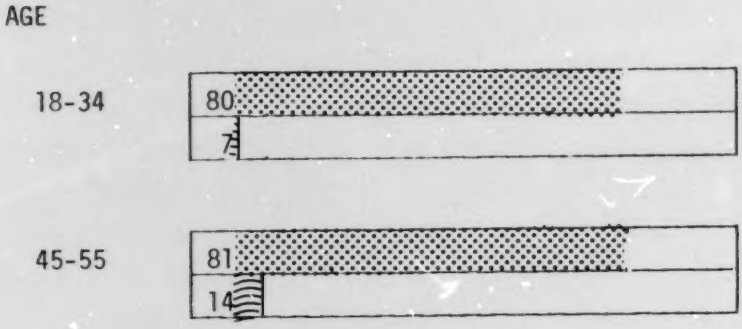
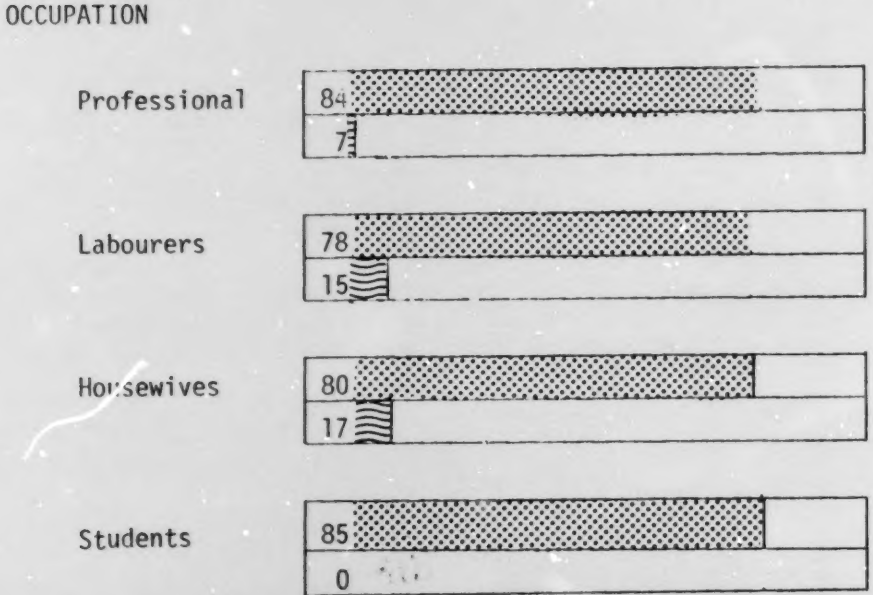


Table 6. Percentages Attributing [Great Importance To] / [Great Success In] Developing a Desire to Learn More - By Occupation



The bar graphs certainly indicate that most of the community ascribe great importance to this issue. They also indicate that the community's perception is that the success achieved by the school in the achievement of this outcome is limited - in fact, very limited in relation to the level of importance ascribed to it.

Schools are, of course, aware of this problem and a great deal of the educational literature addresses it. Open education and the integrated day reflect endeavours to develop approaches that will redress this imbalance. Schools are, however, by their very nature, resistant to change, despite the efforts of reformers such as Pestalozzi, Froebel, Mann, and Dewey. In spite of the efforts of these - who will no doubt be followed by others - schools may well remain essentially the same as they are now.

Those who spend a great deal of time in classrooms can, I expect, see why schools are as they are. I have been in many classrooms, as a teacher and as an observer in other states of Australia and in other countries. My eyes see more similarities than they see differences. I suspect that we might also note strong similarities between our present classrooms and those of 50 years ago, or those of 1990.

Jackson (1961) says, "In a fundamental sense, school is school, no matter where it happens." In his address this morning, John Topley reviewed demographic projections for 1990 and concluded that "we know a great deal demographically about the Class of 1990." I would add to this that we also know a good deal about classroom practice in the classroom of 1990.

Many writers who have analysed classroom practice have equated schools with hospitals and factories in terms of certain organisational characteristics. Reasons usually cited for similarities include such elements as: compulsory attendance; the duration of the school day and year; the collective nature of teaching and learning (e.g., matters relating to teacher:pupil ratio); and power relations between teacher and student.

Writers of the 1960's and 1970's produced some severely critical analyses of schools. Although they took different perspectives on

the issues, many roved around the themes of the suffocating effect of compulsory schooling on many adolescents; the "socialising" to the national norms and the regimentation produced by the bureaucratic structure of the system of schooling; and the repressive, mechanical style of pedagogic practice (for example, Crittenden, 1980).

Jackson, in his well-known book Life in Classrooms, provides excellent portrayals of how and why classrooms operate. His writings would probably ring true to teachers in classrooms almost anywhere in the world. According to Silberman (1971), although Jackson produces a devastating picture of how repressive and stultifying schools are, he essentially approves of the current functioning of schools on the grounds that there is no alternative. When Jackson wrote his book in 1968, he was short neither in the area of practical experience nor in the field of theoretical insight. He was, at the time, Principal of the University of Chicago's Nursery School and was also Professor of Education at the University of Chicago.

While this argument may be seen to be fatalistic and defeatist, it may be more profitable to see it as realistic. In this way, our search may lead us into the task of analysing and studying classrooms in an effort to obtain better and more realistic pictures of classroom life. It could be argued that many reformers are armed better with a cherished philosophy than with an insight into the complexity of the classroom. The claim might further be made that reformists' orientations are usually based on isolated elements of the curriculum process to the exclusion of hosts of highly complex and interactive considerations which are the essence of classroom life. Pursuing this line of reasoning, we are then led into the area of self-review, self-consideration, and self-improvement. Perhaps Jackson and others such as Elliott (1975) and Stenhouse (1975), with their concerns for classroom study, for action research, and for seeing the teacher as a researcher, provide a way out of our dilemma.

One strategy for ensuring a greater societal, and in particular, community input to school and classroom practice on a continuous basis is to broaden the base of participation in education.

Victoria has recently made giant strides in this area with its four Ministerial Papers. Ministerial Paper 2 puts forward considerations in relation to a School Improvement Plan. Most of the issues in this paper are within-school matters, and draw on what seems to be the key paper - Paper 4 - which deals with school councils. The purpose of the councils is, I should point out, to have a substantial say in running the school. The membership of school councils is of interest. The Victorian Government announced that it was its intention -

> ...that the proportion of membership of the reconstituted councils will be as follows:
>
> (a) Parents (including representatives of parents' clubs) shall constitute no less than -
>
> . half of a primary school council; and
>
> . one-third of a postprimary school council.
>
> (b) Staff shall constitute no more than -
>
> . half of a primary school council; and
>
> . one-third of a postprimary school council. (Members of staff with children at the school at which they teach shall only be eligible for election through this category.)
>
> (c) There shall be adequate student representation in post-primary schools in relation to school size and structure.
>
> (d) Up to one-fifth of the total membership may be co-opted by the elected council, to represent wider community interests.
>
> (e) The Principal shall be a voting member of the council and, for the purposes of co-option, shall be considered as an elected member.
>
> (Ministerial Paper 4)

One of the criticisms I noticed in the southern press following the release of the papers was that the involvement of the community might be difficult to achieve. The argument put forward was that involvement

at present was relatively limited and that to accord such a value to councils might be invoking a procedure which the community would not support. It could be, however, that with involvement now being cast in a substantially different light, the community may well involve itself more closely with school matters. The strategy represents a basic philosophical and structural change which addresses both systemic and classroom practices. It represents a deliberate departure from the tradition of centralised policy control on the part of the Victorian Government.

The A.C.E. survey probed the issue of parental involvement in school policy making (see Tables 7 and 8). As the bar graphs indicate, between 40 and 50 percent of the community ascribes great importance to such involvement.

Table 7. Percentages Attributing [Great Importance To]/[Great Success In] Involving Parents in School Policy Making - By Age

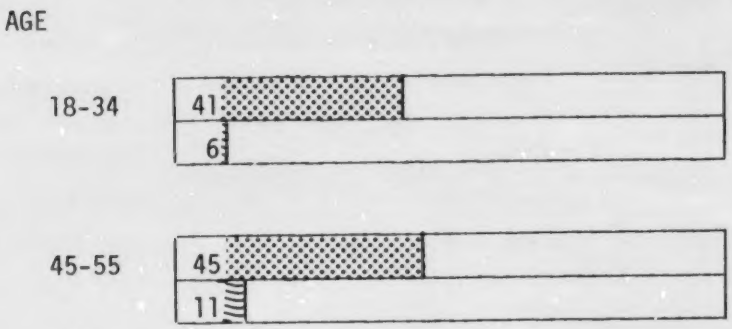
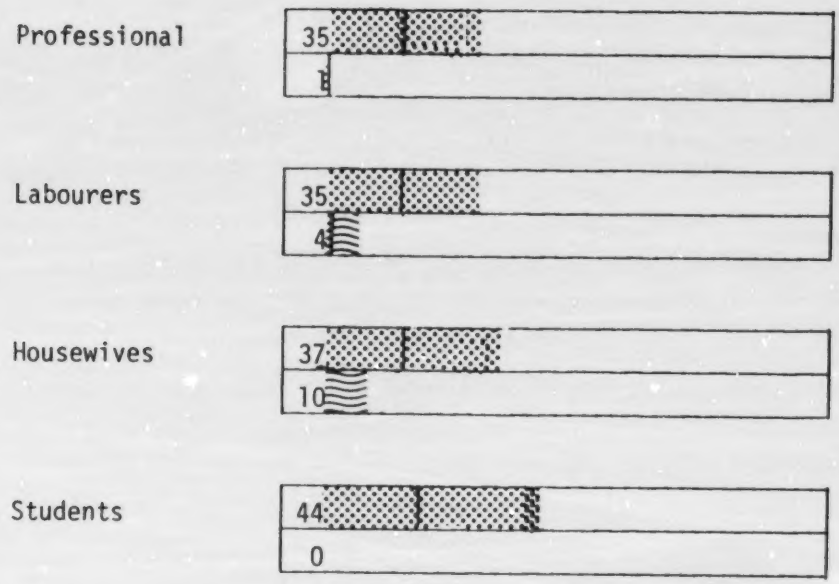


Table 8. Percentages Attributing [Great Importance To] / [Great Success In] Involving Parents in School Policy Making - By Occupation



Involvement of parents and other members of the community is a basic principle of the Victorian Government's philosophical position. From the Victorian perspective, I believe that they would regard it as the foundation on which the other matters discussed in the preceding tables are predicated.

Victoria's practice really does not involve merely the analysis by the school system of community values, norms, or other requirements of the education system. Rather, Victoria has endeavoured to build the community into the educational process through effecting fundamental changes to the decision-making process.

The point of bringing in this issue concerning school councils was not an attempt to advocate their introduction in Queensland. Rather, it was drawn on to provide an indication of a structural change which addresses the relationship between the school and the community.

I have not, of course, answered all the questions posed. However, I have endeavoured to make the point that both systems and individual schools need to give some basic consideration to the relationships between educational purposes, community and societal norms, and what happens at both systemic and individual classroom levels.

I believe that I have developed three propositions concerning the schools which are of importance to the topic I am addressing:

(i) School is an institution and because of its nature is unable to respond markedly to external injunctions to change or to major internal self-felt needs. (I think the writings of King, Walker, Jackson, and Waller provide some of the answers to John Topley's queries about why schools have grades, why schools have timetables, and why relationships are as they are between teacher and pupil.)

(ii) The perceptions of the community and those of teachers may be at variance on many issues.

(iii) The perceptions of the community are that certain of its values are not dealt with or, at least, not realised in practice.

There would appear to be no basic reason to suggest that these propositions will be any different in 1990.

In the course of this brief paper, two propositions for action have been identified:

(i) Self-analysis and self-renewal by the school and the system are key concepts to action.

(ii) Investigations of different structural relationships need to be undertaken at a policy level (the Victorian example was used in this paper).

What can we expect in 1990? It depends on your view of the propositions concerning the nature of the school and the propositions put forward for action. My considerations of the issues involved lead me to the view that effective action on the relationship between society and schools in 1990 may be based less on accurate forecasts of the substantive elements of the society of 1990 and more on the development by the community (and this of course includes the school) of processes for handling interrelationships.

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LEAD PAPER : THE SCHOOLS, COMMUNITY PRESSURES, SOCIAL EXPECTATIONS, AND TECHNOLOGY

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In this paper, I intend to deviate a little from the set topic: I am going to focus on the social and industrial aspects particularly and leave the schools to other speakers. Because of the short time for this talk and reflecting the hard options facing business today, I ask you to forgive any comments that appear brusque or insufficiently qualified in bringing to you the thrust of my argument.

While some advocate advancement of technology, I have met many, including several secondary school teachers, who would rather "Ban technology as it is consuming jobs".

Let me give one of my starting premises. It is fundamental to man that he is unable to contain his curiosity, and unable to resist improving his position - that is, to tend towards being economical of his labours and the materials he uses. If that has been the case for thousands of years, I do not see it changing for the class of 1990.

The definition of *technology* is given a static flavour in the dictionary: "the scientific study of the mechanical arts". To me that has no movement - it is just a state of knowledge. My experience is that most people give it a dynamic flavour: it is not just a state of knowledge but the application of that knowledge - that is, the practice of mechanical arts. Therefore, I will not use the definition, "the scientific study of industrial and mechanical arts". To me that is locked up in the library. I want to expand the definition to "the means by which one obtains a greater efficiency in converting input to output". This can be viewed as greater output for the same input, or the same output for less input.

Thus I am still in the world of the physical. Inputs and outputs are measured in terms of labour, materials, goods, services. I believe

you would want me today to widen the static definition to the dynamic one. The study and state of knowledge of the mechanical arts I shall refer to as "the technology bank". The putting to common use of elements of the technology bank I shall call "technology". For the vast majority of us, we see only technology, that is, the practice. If it never comes out of the bank, it is of academic interest only, impinging on the lives of very few people.

We are here to talk of the world ahead for the Class of 1990. I should like to look at those passing out of school and university in that year after continuous education. Their ambitions they will measure against their past experience. They were born in 1970-1973. Their parents went to school in the years after World War II and, if in Australia, saw an unprecedented boom in immigration and schooling. When their parents were leaving school, the world was in the development decade: a ten-year push in the 1960's to bring the under-developed countries more into line with developed countries. I do not intend to go into the success of the push.

I should also clear the nomenclature relating to under-developed countries: in 1960 it was "colonies and under-developed societies"; now it is "less-developed countries" (LDC's), which I shall use in the rest of this paper.

In Australia we were cast adrift by the reality of the United Kingdom's becoming part of Europe. Fortunately for us, we were rich in the raw materials to fuel the development decade, and rode on the coat-tails of Japan's industrialisation plan in particular. The classes of the 1960's had more jobs waiting than people to fill them. Material wealth in Australia took a big jump. It seems quite likely that the Class of 1990 will not emerge to a development decade similar to the 1960's. Although one cannot rule out economic surges of some duration, a period of sustained growth in physical output like the 1960's requires more fundamental demand than I can see ahead.

You would expect me to see things from an industrial viewpoint. In the following, I take for granted, and ask you to also, that economic growth is not only desirable, but essential. It is the engine that

generates wealth, provides jobs, and funds the redistribution of some of the wealth via government.

It is always important to a producer of goods or services first to look to the market - what is the location and nature of demand for the output? This knowledge determines the inputs needed. Some of that input, in turn, is the output from your schools - educated people. Your output is one of my inputs. But I must look first to my planned output. To decide this, it is necessary to look as widely afield as there are customers for a product, and significant influences on demand and competing production.

I want to offer you a scenario of some forces I see at work in industry and commerce. I leave it to you as specialists to pick up any thread you may see as influencing curriculum planning in schools.

In the 1960's and early 1970's, big was beautiful. The efficiency of converting input to output (i.e., "technology" by my definition) was largely improved by increasing the scale of operation. At that time, the demand for goods was strong internationally, requiring new supply. Australia had a comparative advantage in its abundant raw materials, and domestic demand was also present owing to population growth, low inflation, and full employment. Since that time, the demand has not matched the capacity available to meet the demand. There are no longer the same gains to be made simply by doubling output, for who would buy this doubled output? Balance of supply and demand is not my topic; however, as it is fundamental, it is relevant to list a few factors.

L.D.C.'s have traditionally supplied raw materials and labour-intensive goods to industralised countries. They are dependent on these export earnings for their own development, so necessary for basic improvement. Yet they suffer most when a drop in demand in industrialised countries cuts off their export markets.

Governments of many L.D.C.'s, assisted by international financing agencies, have decided to move into economically scaled operations to upgrade their domestic resources as a national priority, to break their dependence. At home, then, they have a captive market, and abroad an

export market which they can meet head on by appropriate pricing. As in most L.D.C.'s, there is little private wealth: the operation is most often owned by government and relies on some form of economic advantage. Even if not all these developments have been well based in business terms, a determined government enterprise does not have to react fast to losses. The result is an over-capacity, which has worsened the already poor position in industrialised countries. Private owners there have had to react to losses, and capacity has been closed down.

What is an example of a market lost to an industrialised country? Steel is an obvious one. Japan has taken markets long ago from the U.S.A. and Europe, and continues to do so, but it is now feeling the pressure from below as Korea, with modern facilities, is taking markets from Japan. China is beyond that. Textiles are even more obvious; they have not needed the large capital investment of steel.

With the market share lost to industrialised countries go the jobs and wealth otherwise involved in favour of emerging countries.

As developing countries take market share from industrialised countries, by volume and price competitiveness, the industrialised countries must either:

(a) improve their productivity by moving up the technology ladder to areas of competitive advantage over L.D.C.'s, or

(b) fail to maintain their living standards.

What are the areas of competitive advantage the industrialised countries seek? Their material living standards are high. It is unusual to hear a request for a reduction, to compete head on with an emerging country on equal terms. The answer can only be in productivity.

To that end, the industrialised country makes withdrawals from its technology bank, which has far more deposits than the similar bank of an emerging country. These withdrawals I think of as in a range:

1. At one end are new processes with which emerging countries cannot easily compete. These new processes rely on a reservoir of advanced technical skills, operating know-how, an educated population, existing infrastructure, and an adequate domestic market.

   In this category are:

   - better use of existing hardware;
   - smaller, more flexible production units;
   - replacement of metals in some uses by composites produced by sophisticated means;
   - environmental quality at least cost;
   - biotechnology advances;
   - quality of leisure;
   - communications.

   It is in such areas that the technology bank also needs deposits from research and development, which in turn need profits for funding. For most of your class of 1990, however, I believe the deposits have already been made. The hardware is in place. There is not a need for some magic formula. The need is for nothing but application and hard work.

2. At the other end of the technology bank withdrawals are existing processes and know-how which cannot be economically used for new capacity in the home country for various reasons (e.g., labour cost, existing facilities, access to power source), but which are acceptable in the emerging countries. Sale of such know-how can be a lucrative business, with cost of development projects commonly exceeding hundreds of millions of dollars.

Where is Australia in all this?

To the extent that Australia is a primary producer, we line up with the L.D.C.'s and to date have been a strong competitor thanks to the abundance of nature, and investment in productivity to gain economies of scale and offset high labour costs.

In relation to upgrading of some raw materials, we have done so on such a scale that we have taken jobs from industrialised countries where capacity has shut down. Such projects can employ only a limited number of people, but must be encouraged where we have a true comparative advantage, without subsidy. The risk is that costs, whether direct or via government charges, will erode our competitiveness.

To the extent that Australia has a high living standard, we are aligned with the industrialised countries, with our manufacturing industries under pressure from L.D.C.'s. Because of our small domestic market, we often lack economies of scale and are under pressure even from distant industrialised countries. Industry protection is costly for all. Any trend to economic smaller-scale production should be to our benefit.

We have a substantial know-how in our own technology bank which requires some boldness in application, but which can reap rewards. New scientific information is not often required except at the margin. What is required is skilful and flexible use of information already on hand. It is going on now:

- arid farming developments;
- machinery, metallurgy, custom-made solutions;
- systems design;
- communications;
- aircraft;
- *Australia II* at Newport.

In the brief time available, I have aimed at a scenario where Australia has two main thrusts in maintenance of living standards:

1. Retention of a comparative advantage in primary production, in particular mining and some early processing.

2. Upgrading our use of existing technology at the margin, and taking advantage of opportunities to sell overseas and develop in Australia where our skills are well advanced due to efficient practice. "Interdisciplinary", if you like - delivery of a total package that works.

But where are people in the scenario?

Employer demand is for people who possess good basic skills, literacy, numeracy, precision, quality, self-discipline, dedication, flexibility. All of these should be evident before employment.

They present a challenge to society and to educators.

With the development of skills and work attitudes to the standards required, it seems likely that the school and work will come closer in the future. Re-entry to school seems to me to be a growing feature worth establishing as a norm for some employment, and no doubt is more common than I am aware of.

People in turn have certain demands of their own, and here technology shows in its true perspective as merely a tool.

People demand basic satisfactions:

- sense of worth as an individual, whether employed or not;
- job interest, participation, development;
- standard of living;
- quality of life;
- security (which may be at odds with flexibility).

These present a challenge to society and to employers.

Autocratic management is dead. The future lies in participation in planning, together with flexibility and decisive leadership. Ignorance, on the part of both society and the unions, of the need for profit and reinvestment I believe is dying with autocratic management, as it should. Certainly the redundancies common today are showing what is the result of a lack of profit. Maybe centralised government and some education systems could diminish some of their power, and decentralise to advantage.

Answers to the challenges may be sub-optimal, but I believe that, with sensitivity, flexibility, and dedication, answers can be found..

LEAD PAPER : TECHNOLOGY, SOCIAL CHANGE, AND THE CLASSROOM TEACHER - A PRIMARY SCHOOL PERSPECTIVE

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As I prepared this paper, it dawned on me that my son of seven months will be a primary school child of the 1990's. So while I might recycle other people's ideas about the future primary school classroom, I have an additional interest in the reality because I shall, most probably, still be a classroom teacher and I shall also be closely examining the primary school prospectus as a parent.

I should like to make several projections about the classroom teacher in the first few minutes, and then list some of the possible workings of the 1990's classroom. Most of these predictions are based on what I see in schools in the 1980's.

Fresh Skills in Curriculum Design

No matter what form the classroom of the future takes - be it "horse-stall" learning, that of an educational centre, or a "play-group" - the teacher (the educational adviser, the facilitator) will need to have acquired advanced curriculum design skills.

If, as some say, most children's learning in the 1990's will be done at the computer terminal, there will still be a demand for well-developed curriculum knowledge. Teachers will need to advise families on the nature, quality, and value of software available - heaven help families if that advice is left to the educational sales representatives from computer companies!

It will be teachers with mature curriculum vision who will help prevent one of the most awesome rip-offs in educational resource history, namely, the enormous proliferation of software some of which is not worth the material it is written on.

Teachers will need developed curriculum design skills to cope with the rate of change in technology and in society, in order to constantly redefine "the basics" for a particular group or individual. (Defining the "basics" - now there is a challenge we haven't yet met for the 1980's!)

Computerised technology will never replace the shared human aspects of education - work with a peer group or a teacher. So, whether it be leisure skills, social skills, personal development education, religious education, or the more traditional academic skills of oracy and literacy, there will be a place for a well-developed understanding of curriculum design and the skills for curriculum implementation.

Open to Change: Flexible, Adaptable

"We live in a pluralistic society" is one of the enduring slogans of the 1980's. Different heritages, differing values, changed knowledge, changing customs - the pluralism of the nineties will be far more varied than we know it today.

Tomorrow's teachers will need to be far more open to change than ever. The knowledge explosion, technology, and what some call "the modern consciousness" will force the autocratic, "chalk-and-talk","fount-of-all-knowledge" teacher out of business.

Teachers will play more the role of facilitators, advisers, and "fellow learners" with children, rarely having to rely on "chalk-and-talk".

New Discipline in Classrooms

Primary teachers in 1990 will not be able to rely on their authority as "learned adults" as they do today.

We are witnessing the denigration of tradition in our society; a clinging to the powers of reason; a demand for information that is able to be "proved" and presented in such a way that the receiver can "prove" what is being said. This "rationalism" has led to the erosion of religion and traditional authority where they are seen to limit a modern person's choice.

The great rush (and rash) of change has forced us into a plethora of choices which previous generations did not encounter. This constant barrage of choice, together with the erosion of traditions and "authority", has forced the modern person into a new type of "subjectivism": trust self before others.

The authority of teachers will continue to be challenged and rejected through the 1990's.

The constant questioning of all things and rejection of the traditional authority of teachers can be seen in our Grade One intakes of the past few years. Gone are the days of the naive, unquestioning five-year-old, just waiting to be filled with knowledge. Some of these little people are already computer experts; some are literate; some are space technologists; and certainly, many are great science fiction story-tellers. (I still have not caught up with the vocabulary of Castle Grey-Skull!)

Even if the classroom of the 1950's pushes itself into the 1990's, teachers' style and approach to children must change.

The "modern consciousness" produces not only changes in learning approaches but also very divergent values and behaviours: even today primary school teachers are in the "front line", combatting every type of social ailment. Children are bringing their problems to the classroom in a quantity not previously experienced. More so tomorrow!

So it seems that the teacher of tomorrow will need to function more as a team member. She/he cannot attempt to be an educational adviser, social worker, counsellor, and careers adviser all in one. The alternative is to be part of a team which includes the above.

Yes, a social worker for every primary school! And other professionals who will introduce preventative care to primary schools. As Laurie Miller predicts: "In this period of rapid change the need is for more informed attention to the human aspects of education. In a technological society, technological changes in education will inevitably come. But can a technological society survive, and is it worthwhile, unless its human foundation is strong?"[1]

Fresh Co-operatives

Tomorrow's teachers will need to work in closer co-operation with parents and children, with fellow staff members, with interested groups, and with professionals at other institutions. With the emergence of more K-12 courses and "life-long" education, there will be a need for closer co-operation between the links in those educational chains. Parents will demand more accountability.

Tomorrow's teachers will need to cope with more parental pressure for their children's success. If, as some predict, only one in three will have employment (and if society does not redefine work in terms other than work equals money), then competition for job pressures will move well down into the primary school.

With large numbers of young people unable to find employment, it will be critical for teachers to arrange "leisure-time training" for all well in advance of adolescence. We might well see occupational therapists join the school team in the leisure-time training role.

Tomorrow's teachers will need to market aggressively their curriculum proposals to the community. Available evidence suggests that, unless participation in curriculum planning is widely shared among teachers, principals, central office staff, students and parents, the amount of support for any program is significantly reduced. (Perhaps this is a major reason for the lack of confidence the community has in some of our schools today.)

Parents will need to engage in a closer partnership with the 1990's classroom teacher for several reasons -

(a) to avoid waste of learning time, opportunity, and resources;

(b) to capitalise on parental knowledge of children's learning habits (especially with the mobility of society);

(c) to help redress children's social and personal problems;

(d) to assist with family living skills, for example, media awareness.

While school and home have been the traditional educators of children and have worked from a common base (the common good), we now have two

new agents of education - the mass media and computer technology. It should be noted that both of these two very powerful agents of education work from a profit-making base and not necessarily for the common good.

Thus it is more important than ever that tomorrow's teachers and parents form a closer co-operation.

Smaller Classes

Because of the need to individualise instruction in the 1990's, teachers will necessarily have fewer pupils. We would all recognise that to teach a maths lesson for 35 children is much less demanding, much less time-consuming than to teach a class of 35 in four different ability groupings. The mind boggles at individualising the curriculum for 35 children, even with computer technology at its best.

Perhaps teachers will need to become more committed unionists to ensure class groups of five to ten pupils. Financial cutbacks will continually work against small class size (a more realistic class size will probably be 25-30) - so too will the mind of authority!

Likewise, teachers will need to reduce the size of the school unit to around 100 (bureaucracy won't).

Humanising Education

Diane Ravitch suggests that "teachers will look upon each student as a precious resource - a unique individual with talents to be discovered, skills to be developed, and a mind in need of challenges and nourishment. Unlike some present schools, which are as vast and as impersonal as factories, the schools of the future should be modelled on a family."[2]

Schools must be small if education is to be individualised and "humanised".

A New Breed of Teacher

The primary school teacher of the 1990's must be a risk-taker, a divergent thinker, a progressively minded person with a future orientation.

Much of our educational thinking has been of the kind, "If we have more finance we could...." Tomorrow's teachers will need to break that myopic habit of thinking that lack of finance is the cause of all our problems. In times of fiscal restraint, we need ingenuity, divergency, and change of professional attitude.

Fiscal stringencies in education will provide fewer "traditional" resources. Teachers will have to re-invent and re-use far more than they do today. Teachers with such skills will survive. Technology and community pressure will ensure that.

Am I suggesting that many of today's teachers will fade out of teaching because of their failure to adapt? Yes! Plenty of union conflict there!

The trend towards selective, merit-based employment will force many primary teachers into unemployment or other occupations. There will be slower rates of promotion.

Teachers will have to master more of the behavioural sciences and be computer literate; they will need to have the ability to analyse and deal with the social as well as the technical implications of the new technology.

They will need to be more involved in the decentralisation process that will confront schools. They will be involved in constant staff development programs to counter the effects of rapid change; this will eat into teachers' extra-curricular time, of course. Tomorrow's teacher will need to be continuously educated, in order to understand and cope with social change and new technological developments.

Good teaching in the 1990's will require teachers to learn alongside children.

Teachers will need to be bilingual.

They will need much more self-confidence to cope with vast change and constant change.

They will need to be flexible in all things.

I would also suggest to many teachers today (and teachers in training) that they don't plan on being teachers all their lives.

Children in Classrooms

There will continue to be the classrooms that "have" every educational opportunity and resource, and there will continue to be classrooms that "have not".

Government funding allocations, politics, continued free choice of primary schools, and different degrees of affluence of various sections of the community will ensure that.

In primary schools, the "haves" might enjoy:

- their own computer centre with group and individual terminal spaces; print-out facility for all, for example, creative writing, music, art; unlimited access to major information networks;
- opportunity for highly individualised instruction;
- expanded curriculum offerings;
- specialist staff, for example, religious education co-ordinators, career advisers, leisure-time co-ordinators, sports trainers, artistic co-ordinators, computer advisers and technicians;
- other-than-teaching professionals, for example, social workers, counsellors, occupational therapists;
- theatrette and extensive video and production facilities;
- student lounges;
- several sets of staff;
- continuous timetables;
- flexitime for children's attendance;
- parents-learning-with-children programs;
- multiple secretaries, janitors, groundspersons, etc.;
- own transport;
- individual offices for teachers;

- borrowing libraries for the whole family, for example, software written for individuals by the school, hardware, video equipment;
- telex, video phones, etc. for students;
- external or off-campus courses for parents and students.

The "have-nots" will be seen to have something between the above and its converse:

- limited playground space, larger classes;
- a few computers, limited access to information networks;
- fewer advisers, perhaps shared with other schools;
- fewer specialists;
- limited curriculum offerings;
- traditional teaching methods;
- some de-skilled teachers, executing other people's goals and objectives and carrying out someone else's suggested activities.

"The Basics" of the 1990's

"The Basics" of the 1990's might include the following (with many other course offerings being added as the local community or the individual school decides):

- computer literacy (the ability to analyse and deal with the social as well as the technical implications of the new technology);
- investigating skills (the ability to solve problems);
- logical reasoning (including avoiding common fallacies);
- critical thinking about news, reports, and the media;
- understanding our own culture and others;
- co-operating with others (at work and socially);
- applying information in everyday life;
- expressing oneself through arts, crafts, sport, and leisure;
- learning constantly and adapting to continual change;
- study skills (locating, summarising, re-presenting);

- maths skills (estimating, measuring, number, numeration, space, problem solving, and "the scientific approach");
- expression skills (oral, written);
- organisation skills and self-organisation;
- values clarification and values formation.[3]

Curriculum Options

Other options which might be included in the basic skills for the 1990's might be religious education, citizenship, and languages other than English.

Some classrooms will deal with children with special needs; there will be more mainstreaming of the mentally and physically handicapped; there will be increased provision for gifted and talented children.

Children will probably learn:

- decision-making processes;
- interpersonal skills;
- typing and keyboard skills (even in primary classrooms);
- ecology studies and environmental awareness;
- peace education;
- social, political, aesthetic, and technological literacy;
- relaxation techniques and anxiety level control.

Above all, tomorrow's classroom will need to provide divergent rather than convergent thinkers if our curriculum is to help children live with rapid social and technological change.

1983 - Time to Begin

This conference emphasises the need to prepare now. Otherwise, education for the 1990's will resemble our education for the 1980's - twenty-five years in arrears!

As the Tao says, "A journey of a thousand miles begins with a single step".

As Barrington Thomas told us in his "Two Minutes to Midnight" address a few weeks back, we educationalists are, after the agricultural community, the slowest group to change. That first step is difficult for many! Time, technology, and social change will not wait for the tardy.

I believe that many of today's primary teachers have taken several of those steps. In many ways, the kind of classroom teacher that I have described is very like the classroom teachers that I see in many classrooms in 1983: they are known as "extended professionals".[4]

I suggest that we take these existing "extended professionals" and develop them to their highest potential.

To quote my personal guru and futurologist, Laurie Miller - "Since learning is best promoted by teachers who are effective persons in their own right, it is important that classroom teachers be nurtured through intrinsic motivation. Attempts to force members to grow is useless.... People grow in their own ways... not in the uniform ways which many administrators require".[5]

I believe that teachers will remain crucial to a primary school child's education. Technology can accommodate "academic" growth, but people will best handle a child's spiritual, physical, emotional, and social development.

We are on the way to the 1990's in primary schools, and we are looking for "extended professionals".

Perhaps, we can best define the 1990's classroom by stating what it is definitely NOT, in the words of P.J. Cole's poem:[6]

TELL ME TEACHER

Teacher, teacher, tell me true,
Tell me what I ought to do!

Teacher, teacher, where's my book?
Tell me where I ought to look!

Tell me what to feel and how to think,
When to eat and what to drink.

Tell me what is good and what is bad
When I'm happy and when I'm sad.

Tell me, tell me, what to do,
Tell me, tell me, what is true.

Make me learn and make me know.
Watch me closely as I come and go.

For I am small and I am weak,
Without your permission I cannot speak.

I cannot learn except by your decree,
Please, I beg you, give knowledge to me.

I am stupid and you are bright.
I am wrong and you are right.

I am bad and you are good.
I must do what you say I should.

Oh teacher, teacher, look what you have done!
I don't believe I'm anyone.

Oh, teacher, teacher, can't you see!
Look at what you've done to me!

Henry P. Cole

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LEAD PAPER : TECHNOLOGY, SOCIAL CHANGE, AND THE CLASSROOM TEACHER - A SECONDARY SCHOOL PERSPECTIVE

Daryl Hanly,
Principal,
Kirwan High School.

That we are experiencing social change is indeed evident. One need look no further than the Class of 1983. What evidence is there in schools that we are undergoing social change? There is an increase in the number of single-parent families. Of equal significance is the emergence of the single-parent student. Students may have difficulties relating to the single parent, but what of the student who has to relate to a number of parents? This occurrence is certainly becoming more familiar.

Emotional disturbances occur daily. No longer is the attempted suicide the exception. No longer is it unusual for children to run away from home.

It is evident, then, that the welfare of the student will be of paramount importance in 1990. I would consider that the placing of social workers in schools now is integral to the development of a healthy Class of 1990 and beyond.

Population shift within Australia is taken for granted. Try explaining to a Year Six student from New South Wales why, although he is in his last year of primary school in that State, he must now move to his second last year of primary school in this State. If the Federal Government is to play any role in education - any role in helping to promote national growth and the emergence of a well-educated Australian populace - then surely one place it might start is in promoting a national educational policy.

Much press publicity is being given to the statement by the Federal Government concerning the provision of computers in schools. A previous speaker mentioned the "rip-off" in software production by the computer industry and its application to the classroom. One would think that in 1983 there would be a State Education Department policy in Queensland for the use of computers. Such a policy does not exist at present.

The Class of 1990 would hopefully show the fruits of our recognition of the ramifications of the cultural pluralism which exists in today's society. Hopefully the growth of the role of multicultural education would have brought about a greater understanding of various cultures. Already we see that the Board of Secondary School Studies recognises the effect of ethnic groups on the ASAT mean, and schools in Queensland have been able this year for the first time to exclude from their ASAT mean such ethnic groups.

What of the role of the school as a baby-sitter? At our High School, the first students arrive at 6.45 a.m. and our last students leave some time after 4.00 p.m. Obviously the welfare role of the school must extend beyond school hours. For many students, the school is the one single stable entity that exists, and coming to school is an escape from a non-cohesive, non-supportive, non-stimulating environment. I would anticipate that, for the Class of 1990, there would be considerable activities provided before and after school.

So, having taken the lead from the Class of 1983, what would I hope to achieve for the Class of 1990, taking into consideration the technological developments which we are experiencing at the present moment? Let us first of all turn to a review of the aims of our school. It is not enough to print the aims of the school in the School Prospectus; it is not enough to display grandiosely the aims of the school in the front foyer. The school of 1990 should review its aims with the help of parents and the outside community.

Such a review should include the need for students to be aware of, and to appreciate technological developments; the need for students to obtain specific knowledge and skills to enable them to apply the various technologies; the need for schools to provide students with experiences in the various technologies as they become available in society; the need for students to be aware of the changing lifestyles and work patterns resulting from technological development; and, of paramount importance, the need for schools to prepare students for a changing society.

These aims should be constantly reviewed and evaluated and should be reflected in the curriculum offerings made to the Class of 1990.

What should we teach the Class of 1990? Firstly we should teach them an understanding and appreciation of current technologies available to society, including those used by the mass media, in particular television. When you consider the role of the mass media in forming students' opinions and their ideals and values, then it is important that the student of 1990 understands the devices used by the public media.

With the great growth of knowledge continuing into the future, it will not be possible for students to take in such knowledge. Therefore the student in the Class of 1990 will need to be taught the skills required to use the new technologies. Such skills should facilitate his learning how to locate, retrieve, and analyse information. It is also important that the Class of 1990 be taught the skills and processes required to use the new technologies to help develop logical thinking and critical evaluation.

I would hope that the Class of 1990 would be taught to understand and accept the change in lifestyles which may confront them. Current economic trends would indicate that many students will experience times of full-time and part-time employment. For many, there will be a significant period of non-work. For another group, there is a strong possibility that they will participate in self-employment in a family unit based at home.

The shortening of the working week has brought about an increase in leisure time. Hopefully the Class of 1990 will have the skills to cope with this leisure time.

What of recurrent study? How many teachers on your staff are currently involved in recurrent study? Many teachers gain a primary degree and then their study ceases there. In a period of such rapid technological development, there is a need for the Class of 1990 to have the aptitude and the desire for recurrent study. For many, their lives will be marked by many occupational changes, and the Class of 1990 should be taught the skills to cope with this.

I believe that for the Class of 1990 there will be a greater individualisation of student learning by applying new technologies that provide an inter- or multi-disciplinary approach to subject-matter.

Why does primary school in Queensland finish at Year 7 and secondary school begin at Year 8? There appears to be no valid reason for such a break in the learning process of any student. We are aware that when students move from primary school to secondary school they do suffer from the transition. Why have the transition?

More importantly, why must a student progress in all subjects at the same rate? To me it is just as illogical to tell a child on his thirteenth birthday that he is really ten and that he should believe it, as it is to try to convince a student who is finishing Year 8 and is functioning at the level of a Year 6 student, that he must progress to Year 9 and function at the Year 9 level.

Surely the time has come for our educational leaders to evolve a policy which will allow natural learning to occur and not force progression. Maybe the light is appearing at the end of the tunnel. ROSBA, the Review of School-Based Assessment, offers achievement levels based on assessment criteria. How comfortable it would be for students if they were able to progress on the basis of what they have achieved rather than on the time of year and forced progression.

It goes without saying that the Class of 1990 will be offered a wider choice of subject offerings within a particular school and also from one school to another, depending on community needs.

What of the teachers for the Class of 1990? Needless to say, the methods of teaching will require responses to the new technologies. These responses must include a major review of the teacher training processes. All present teachers will require updating on the new technologies either through basic courses on computer awareness or through more intensive courses which emphasise how these technologies can be related to the presentation of subject-matter. Teachers must be allowed access to these new technologies. Teachers must also be given the opportunity for experiential learning to review their teaching methods so as to use new technologies. The expense of this updating is certainly overwhelming. However, it is the teachers who will lead the Class of 1990 through this technological change and, for progress to occur, the expense of such teacher updating and teacher training pales into insignificance.

Will the buildings and facilities for the students of the Class of 1990 be different? Kirwan High School is a flexible space school, and I would consider that the classrooms of the 1990's will vary little from what exists there. The flexible space school offers the chance for the team approach to teaching; the success of the team approach has been vividly demonstrated at our school.

If I were given the choice of another building to house more students or the money, I would accept the money and purchase for the school a number of buses. No education system can hope to keep its school equipped with current technology. This technology is being used currently in the work place in our communities. Visit any secondary school and see how many manual typewriters are still being used to teach typing. Visit office buildings and see how many manual typewriters are not being used. The Class of 1990 will spend a great deal of time out in the community taking advantage of the resources to be found there.

The Class of 1990 will have their school managed in a different manner from the Class of 1983. Economics will make us recognise the need for the shorter individual working week for the employed, and the need to offer wider educational programs to cater for their leisure time activities. We cannot afford to continue to waste our school assets, and hopefully there will be more effective use of such assets.

If we are to offer a wider choice of subjects for the students of 1990, then I can envisage multiple shifts of schooling with morning, afternoon, and evening programs. I have already mentioned the need to integrate with community resources by bussing students out into the community or by bringing resource personnel into the school.

Hopefully the Class of 1990 will be run by a Principal who has the power to hire and fire staff and who is accountable to a governing body. It is possible now, in our State education system, for a Principal to transfer out of an unsatisfactory situation. How much more accountable would that Principal feel if he knew that a school council had the right to terminate his services should the quality of return for salary paid be unsatisfactory?

It would be very important for the student in the Class of 1990 to be equipped with the skills that would carry him on into the twentieth century. Such skills would include the following:

- the ability to plan and organise;
- the ability to lead and to control himself and others;
- the ability to communicate in words, figures, and machine language;
- problem-solving and decision-making skills;
- the ability to be a self-starter and to motivate himself and others.

The student of 1990 would need to have had experience in creativity. Hopefully he would be a lateral thinker with an open and enquiring mind, flexible within himself and flexible with other people. He would be unwilling to accept the status quo unthinkingly. He would be willing to recognise and accept and use the creative skills of others.

The student in the Class of 1990 would hopefully be taught such political knowledge as would allow him to recognise the role of governments in our society and the significance of political events and the reason for their occurrence.

Self-awareness skills would be of paramount importance to the Class member of 1990. Such a student would need to understand his own goals, his strengths and weaknesses, his values and beliefs, so as to be able to accept himself and yet to determine what should be changed within himself.

Hopefully the student of the Class of 1990 would be able to express himself through the use of an extensive vocabulary and a logical argument, and would exhibit interpersonal skills such as empathy, sympathy, and a genuine concern and consideration for other people.

There is evidence that education departments and governments are concerned with the Class of 1990. There have been a series of ministerial papers in Victoria which propose changes that will guarantee the quality of education for the Class of 1990 in that State. The Age notes that these documents "are not very large. The one with the most momentous implications has only eleven pages, but the four published papers point

the way to a revolution in Victorian education. Collectively, they promise the most dramatic changes to a school system yet seen in Australia."

These papers include "Decision-Making in Victorian Schools: the School Improvement Plan", which one commentator has suggested is a kind of "pull yourself up by the boots program" in which schools will be encouraged to do some intensive soul-searching to evaluate what is being done, to come up with ways of improving the education being offered to students. The aims of this paper include assistance to schools to reflect on their total practice and to develop in ways that improve the learning experiences of all students; to encourage those processes of systemic decision-making which provide resources and services to schools in ways that meet their identified needs and result in the delivery of a co-ordinated supportive service to the school; to encourage and support collaborative practices between parents, students, and teachers in schools, and between the school and the rest of the system; and to encourage and support a cyclical process of school evaluation, planning, implementation, and re-evaluation.

Other ministerial papers include "The State Board of Education" and "The Development of School Councils"; these offer a model upon which we can develop appropriate school structures for the 1990's.

I consider that education in Queensland is at the crossroads. In the very near future, there will be many changes in the upper management levels of our Department of Education. It is my hope that these positions are manned by younger people who are "risk-takers". Needless to say, risks are taken only if one is fairly sure of success. There is a need for decisions to be made and for people who make these decisions to remain at the task and to evaluate and be accountable for decisions made. Victoria has begun the process of ensuring that the Class of 1990 receives the best. I hope that today's conference marks the first of many steps for us.

WORKSHOP GROUP #1

IMPACT OF TECHNOLOGY ON CLASSROOM LEARNING

Leader/Reporter: Dr. John King

1. What Types of Technologies Might Be Relevant to Classroom Learning in the 1990's?

It was suggested that the information technologies involving some of the following areas would have some impact on learning:

- Computer technology which is becoming available now and which will further develop into the fifth generation computing systems of the 1990's, including expert systems.

- Video disc technology, which has still to arrive in the classroom but which offers potential for mass storage of information in a variety of forms including digital, picture, and sound.

- Information networks making use of large data bases which may incorporate satellite communication and enhanced television access. Current examples include the British PRESTEL system for software transmissions via telephone and the ORACLE/GEEFAX type systems which operate using television frequencies.

The group concentrated on computer technology as this was the area with which most had some familiarity.

2. What Advantages Might Computers Offer for Learning?

- It was suggested that computers were unique in that they offered a two-way path to the user whereas previous technologies could offer only a one-way path. For this reason, a high degree of interaction between the machine and the user was possible. Computers could offer a return to the Socratic approach in that all the learners could become participants.

- It was further suggested that computers can provide for individualisation of learning, where the learner moves at his/her own pace and receives remediation where appropriate.

Discussion on the above two claims highlighted the following concerns:

- Individualisation of learning requires a significant number of computers/terminals and this involves high costs.

- While the computer may free the teacher to manage the learning process, the teacher may well become more a manager of equipment than of learning.

Hence the advantage of large-scale use of computers for learning in the 1990's may not be achievable unless unit costs drop significantly and unless the reliability of equipment improves.

3. How Might Computers Be Used in Learning?

Two areas considered important included -

- learning about computers, including computer awareness, computer studies, and programming;

- learning with computers (computer-assisted-learning - C.A.L.).

The second of these areas was considered more fully in terms of who was controlling whom in the learning process. Four possibilities considered included:

- The computer controlling the student - computer-assisted-instruction (C.A.I.). This mode has inherent problems related to costs and management referenced above.

- The student controlling the computer - involving such things as conjectural learning using simulations where it is possible for the student to ask and investigate questions such as "What would happen if...?" This approach was seen to have potential but could involve difficulties in finding suitable locations in the curriculum. Computer simulated exercises involving social values were suggested as an interesting possibility.

- Computer, teacher, and student working co-operatively to enhance learning - involving the use of the computer as a resource. Some possibilities suggested here included the use of the computer as an information retrieval system; the "Convicts and Computers" data base was cited.

- Teacher and computer without the students (who needs them?) - the mode of interaction suggested here was for such things as the preparation of activity sheets which could be used in the class for later learning.

4. Other Concerns Relating to New Technology and Learning

Some further concerns which emerged during the discussion included:

- the need for teacher training in the new technology to update knowledge and techniques;

- the affluent may become advantaged in learning because of access to technology in the home;

- the production of suitable software, including software capable of flexible use, will be a problem.

WORKSHOP GROUP #2

UPDATING THE TEACHER

Leader/Reporter: Ian Nisbet

The task of updating the teacher to fit into the educational setting of the 1990's first of all required an examination of present updating and "uptraining" (raising formal qualifications) procedures, as well as some anticipation of role change in the light of the demographic and technological factors which have been identified as likely to influence the future of the education system.

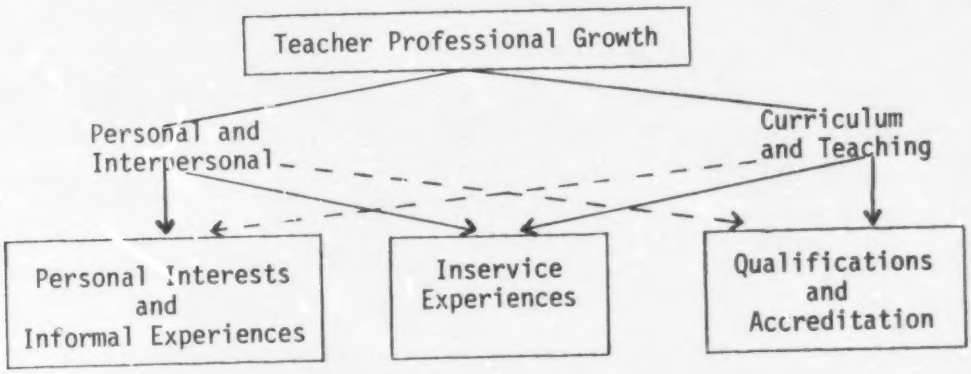
Teacher updating is seen as occurring in two major dimensions -

- a professional, or academic, strand, which is involved with curriculum development and teaching skills; and

- a personal and interpersonal strand, which focuses more on personal interests, talents, and self-awareness.

These areas of teacher development can be fostered in formal courses (for qualifications and accreditation), in inservice programs arranged by employers and teacher groups with varying professional interests, and in a range of personal and informal courses and experiences. This idea is presented below in Figure 1.

Figure 1 : Updating the Teacher



Some teachers felt that existing inservice courses concentrate too heavily on academic and curriculum-related areas, and neglect the personal growth and interpersonal functioning of teachers.

Some concern was expressed that present concepts of teacher education are already out of date, failing to prepare teachers adequately for what is even now a complex and changing role. Social-worker skills were suggested as an area which should be included in teacher preparation, and the value of experience in the workforce as a prerequisite for entering the profession, or even as an adjunct to a teaching career involvement, was accepted. Such considerations reflect a need for teachers to become increasingly aware of the changes in our society and of the needs of the community which the education system seeks to meet.

On the other side, the point was made that industry has been reluctant to become involved in education, except as a critical consumer of the product, and that there is considerable scope for some form of teacher interchange with industry. From the point of view of a large education system such as the Queensland Department of Education, the problems of incorporating these ideas into the system, of institutionalising them, appear particularly difficult.

The responsibility for the continuing development of teachers is seen to fall into two separate camps. Employers of teachers requiring additional teaching skills, levels of qualifications, and retraining quite clearly have a responsibility for induction, inservice, retraining, and uptraining programs. However, the development of personal skills and talents, the involvement of individuals in interest areas, and participation in courses and other experiences which provide intrinsic satisfaction as well as increased teaching proficiency and productivity are seen to be the responsibility of each teacher.

The teaching role is also predicted to change in response to general demographic trends and pressures. There will probably be more women administrators in an older teaching group. Teachers will not necessarily stick to the profession all their working life. Training courses for continual professional renewal would need to be reorganised. Summer schools and short professional courses might need to replace the longer professional courses now available.

It would seem that some teachers are already aware of the needs and changing responsibilities of teaching. These teachers would probably update voluntarily, and involve themselves in a continual process of self-renewal. Other teachers, for whatever reason, may be reluctant to follow such a course, and may need some form of external motivation, such as a system of incentives or even sanctions with respect to termination or suspension of their licence to teach.

Communication among teachers themselves, as well as between teachers and the community, is seen as a major problem. The exercise of identifying problems in society and utilising teaching resources (personal, time, and skills) to meet such emerging problems, requires a responsive group of teacher professionals who are aware of their capabilities, strengths, and deficiencies, and who can operate both as individuals and as members of co-operative professional teams.

While a number of questions remain unanswered about programs of professional training and how to change attitudes and relationships, there is acceptance of the view that it is the professional responsibility of teachers to update, and that no teacher (no less now than in 1990) has the right to remain comfortable if that means he/she is to remain ignorant.

WORKSHOP GROUP #3

EDUCATION FOR LEISURE IN 1990

Leader/Reporter: Alan Morwood

1. Definition of Leisure

The following were considered by the group:

(a) "not work time";

(b) freely-chosen activities, self-directed and self-controlled;

(c) relaxation time.

It was hoped that the current definition (a) would NOT persist in 1990, as it produces regrettable community attitudes.

2. Community Attitudes to Work and Leisure

The majority of Australians have a poor concept of "work ethic", which implies that, if you are not in work, you -

(i) must "feel bad";

(ii) must be looking for a job;

(iii) don't deserve any leisure - you must earn this privilege by working first;

(iv) cannot possess a "sense of worth": this is currently related to being in employment.

The "not working" label has even spread past the "dole bludger" to those who elect to stay at home. However, the group felt that the American "Women Who Want to Be Women" movement has gone too far.

The Australian attitude to leisure itself is stilted: one is expected to adopt a "Norm"-like attitude to total non-participation or be furiously over-competitive in one's leisure activities. An Asian peacefulness ethic rather than a work orientation ethic is recommended for the Class of 1990. It is not necessary to "use time" (often in the fashion of the headless chook), or to feel guilty if the hours of the day are not "gainfully" employed.

3. Training for Leisure : Integration the Key

The separation of "the real curriculum" and leisure components in the current school situation is not conducive to integrated attitudes towards work and leisure. Schools currently achieve a great deal of benefit in their Group Activities afternoons and their Outdoor Education programs, but these skills and attitudes should be integrated into the total curriculum. The primary school has achieved more success with this integration than the secondary school. The latter was given a promising lead in Queensland when the ROSBA Report recently inserted "Life Roles" into many curriculum aspects, but teachers have so far failed to take up this challenge.

A possible option that was suggested is to provide basic training (for example, in the three R's) in a formal time slot; such training would be given by specialist trainers. For the remainder of schooling time, the school should become a cultural or leisure centre, with children and adults proceeding at their own pace, without assessment, in self-selected activities. A change of traditional thinking, particularly by management, would have to occur to make this a reality.

4. Who Provides the Leisure Attitudes and Who the Physical Facilities?

The group saw the school as clearly the place for attitude development. Initially, the group saw the community as clearly providing the physical facilities, with both students and those "in work" sharing them; that is, integrated community centres would be established.

However, after discussion, the group saw it as highly desirable to site many leisure facilities at a school. There should be places at school which could be used by all members of the community as well as current students. Past students in particular should be encouraged to return and use school facilities, but the latter should not be exclusively available to this group only.

With regard to staffing and funding of school leisure centres, it is felt that current pressures on teachers may force schools to employ such people as weekend instructors soon anyway. The question of capital outlay for physical facilities was left unanswered, although of course many such facilities (ovals, halls, etc.) already exist in schools.

Finally the integration of community and school leisure facilities would prevent the current stigma applied to "drop-in" (or "-out") centres.

5. Job Sharing

The gulf between "in work" and "unemployed" would be reduced by job sharing, which the group saw as being highly desirable. Initiation of job sharing would be difficult, owing to the inapplicability of existing awards and the reluctance of many employers to take the plunge.

6. An Alternative Solution to the Merging of Work and Leisure

Perhaps the "Kibbutz" model provides an excellent alternative solution for many people, as here work and leisure are almost entirely integrated. Economically, this model could be forced upon many people in our Australian society, and it should not be treated with contempt.

Many Australians suffer from limitations of choice in both their work and their leisure - no money, no skills, no facilities. They should not be denied their own solutions to the problem.